



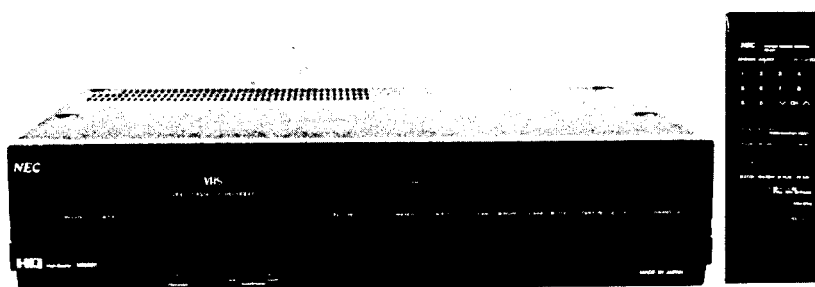
MODEL N9053G/N9055G

COLOR VIDEO CASSETTE RECORDER SERVICE MANUAL

PART NO. 549-91-0387



Better Service
Better Reputation
Better Profit



SPECIFICATIONS

Format : VHS PAL standard
Recording system : Rotary slant azimuth two-head scan system
Video signal system : PAL color and CCIR monochrome signal, 625 lines
Tape width : 12.65 mm (1/2 inch)
Tape speed : 23.39 mm/s
Maximum recording time : 240 min. with E-240 video cassette
Temperature (operating) : 5°C to 40°C
(storage) : - 20°C to 60°C
Channel coverage : UHF BAND IV/V, channels 21 - 69
Antenna output : UHF channels 30 - 39 (adjustable)
75 ohms, unbalanced
Power consumption : 21 Watts
Power requirement : 240 V ~, 50 Hz

VIDEO
Input : 0.5 to 2.0 Vp-p, 75 ohms unbalanced
Output : 1.0 ± 0.1 Vp-p, 75 ohms unbalanced
S/N ratio : More than 43 dB
Horizontal resolution : 250 lines with the SHARPNESS control at center position

AUDIO
Input : - 8 dB, 47k ohms unbalanced
Output : - 6 dB, high impedance load
S/N ratio : More than 40 dB
Frequency range : 70 Hz - 10,000 Hz
Timer : Maximum 14-day/3-event
Dimensions : 430 mm (W) x 99 mm (H) x 375 mm (D)
Weight : 7.0 kg
Provided accessories : Remote control unit
Antenna cable
Size R6 batteries (2 pieces)

Design and specifications subject to change without notice.

NEC Corporation
TOKYO JAPAN

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SECTION 6-1

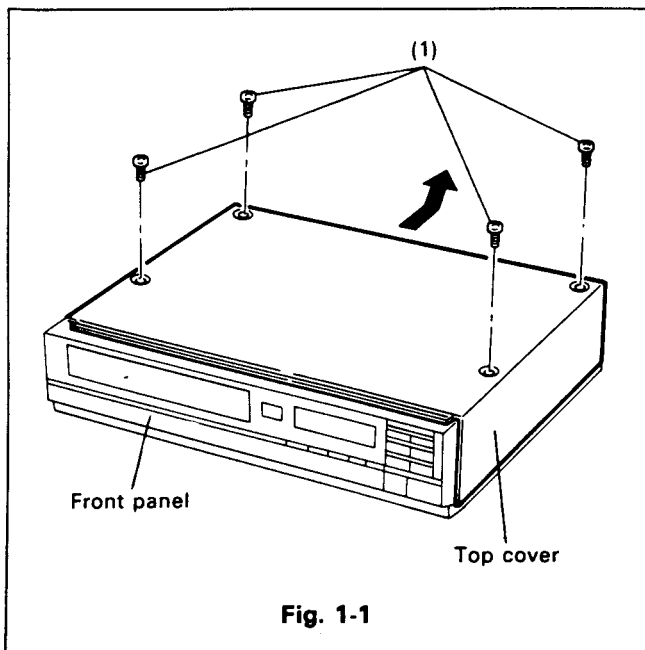
- REPLACEMENT PARTS LIST(N9055G) 6-1-1**

SECTION 2 DISASSEMBLY (N9053G)

1. REMOVING THE CASE

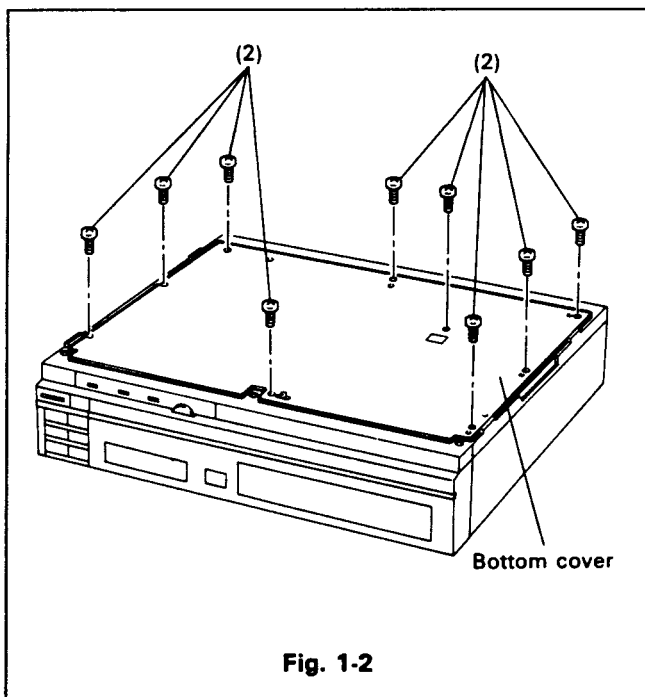
1-1. TOP COVER (Figure 1-1)

- (1) Remove four screws (1) on the top cover.
- (2) Lift the rear of the top cover to release it in the direction of the arrow from the front panel.



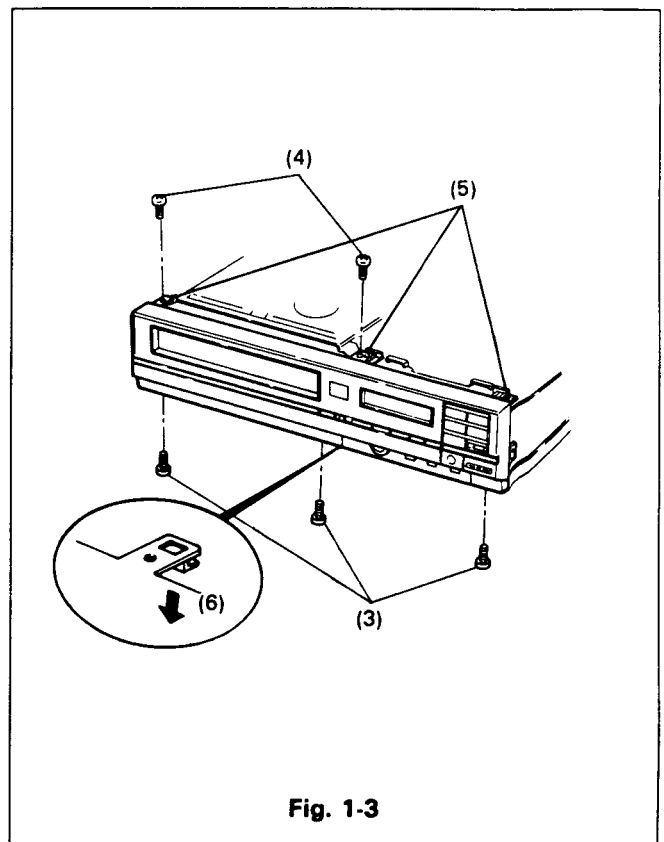
1-2. BOTTOM COVER (Figure 1-2)

- (1) Remove nine screws (2) on the bottom cover.



1-3. FRONT PANEL (Figure 1-3)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove three screws (3) on the bottom of the front panel.
- (3) Remove two screws (4) on the top of the front panel.
- (4) Release tabs (5).
- (5) Release tabs (6), and tilt the front panel forward to remove.



Note: After releasing tabs (6), be sure to handle the tab set very carefully; Otherwise, the released tabs may return to their original locked positions.

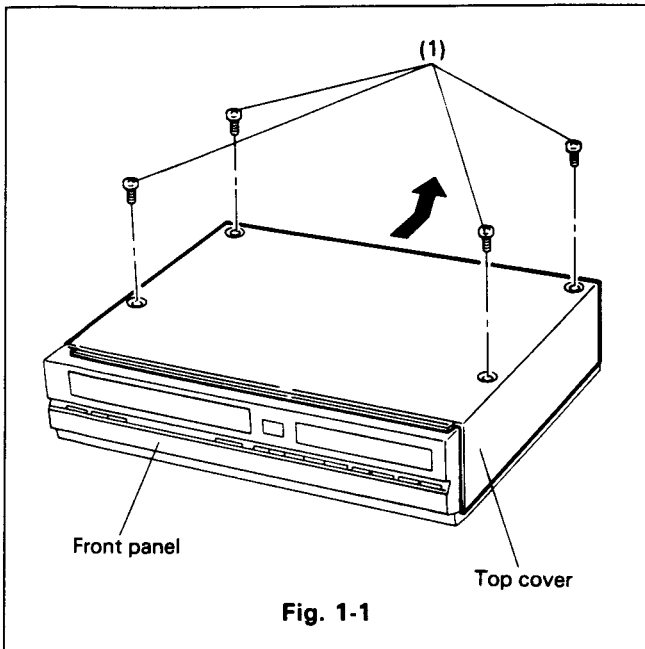
SECTION 2-1

DISASSEMBLY (N9055G)

1. REMOVING THE CASE

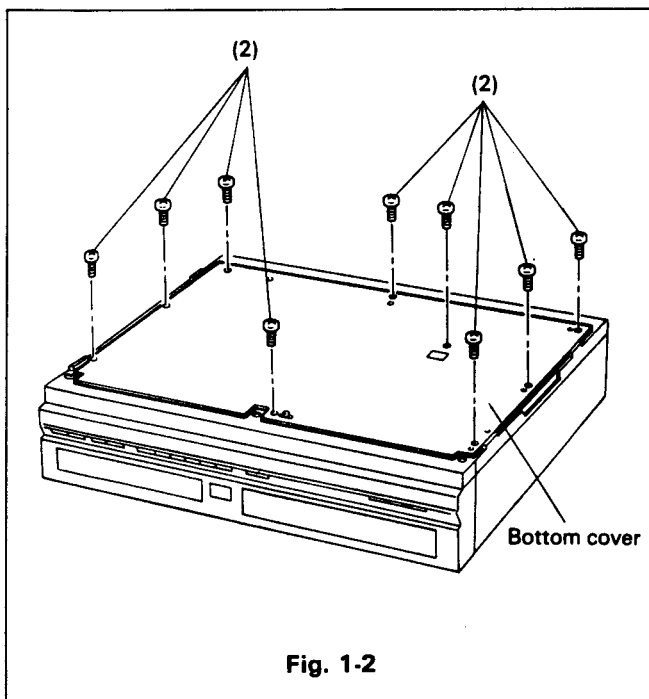
1-1. TOP COVER (Figure 1-1)

- (1) Remove four screws (1) on the top cover.
- (2) Lift the rear of the top cover to release it in the direction of the arrow from the front panel.



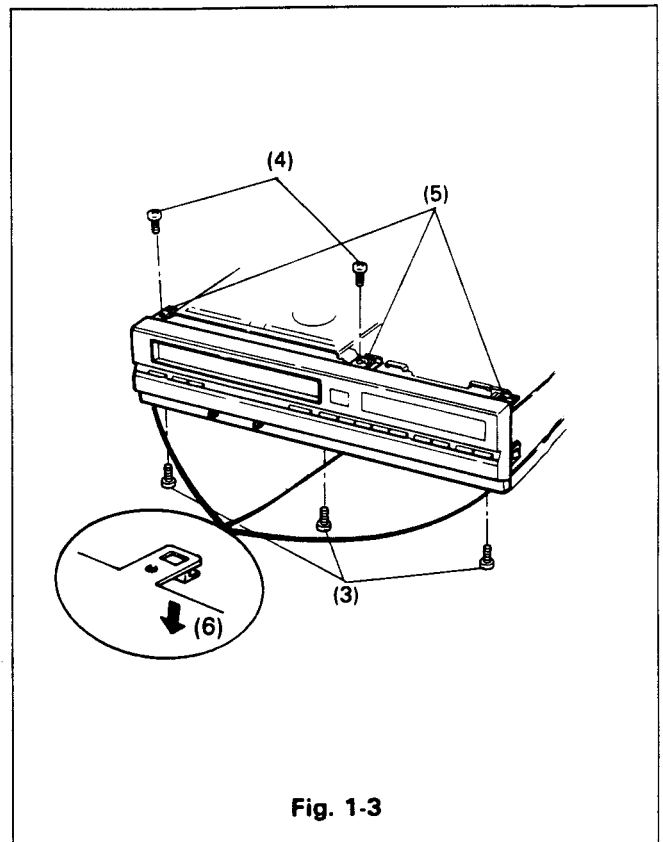
1-2. BOTTOM COVER (Figure 1-2)

- (1) Remove nine screws (2) on the bottom cover.



1-3. FRONT PANEL (Figure 1-3)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove three screws (3) on the bottom of the front panel.
- (3) Remove two screws (4) on the top of the front panel.
- (4) Release tabs (5).
- (5) Release tabs (6), and tilt the front panel forward to remove.



Note: After releasing tabs (6), be sure to handle the tab set very carefully; Otherwise, the released tabs may return to their original locked positions.

2. CIRCUIT BOARD LOCATIONS

2-1. TOP VIEW

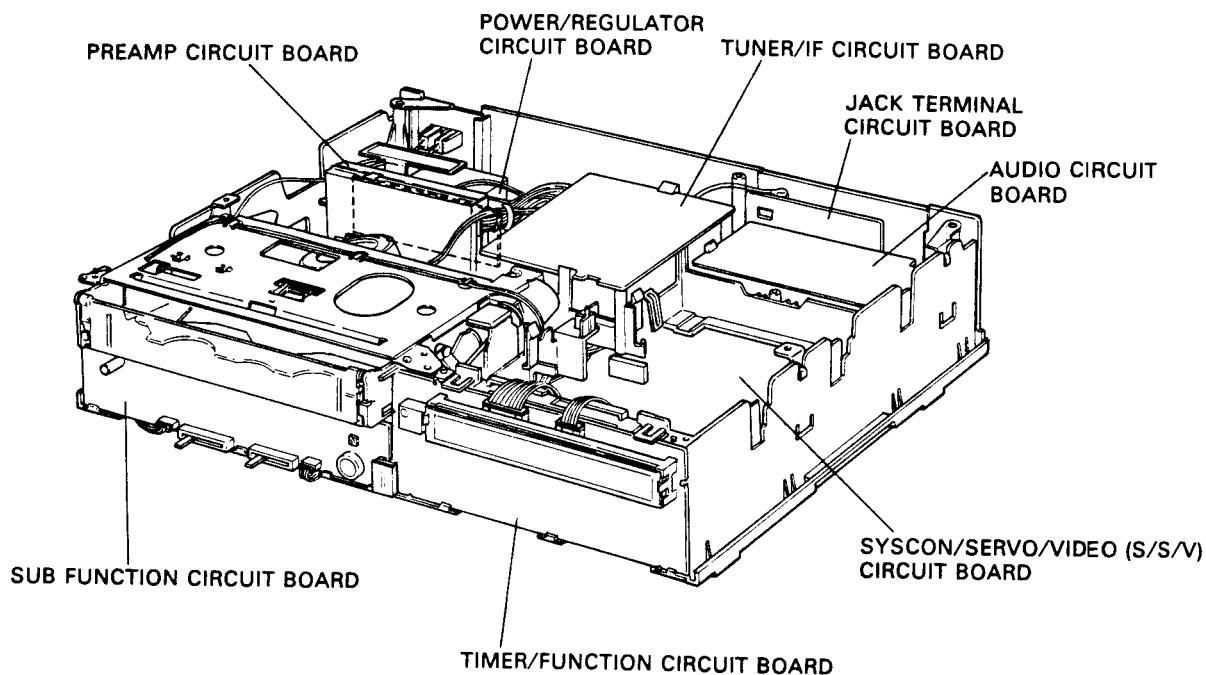


Fig. 2-1

Front side

2-2. BOTTOM VIEW

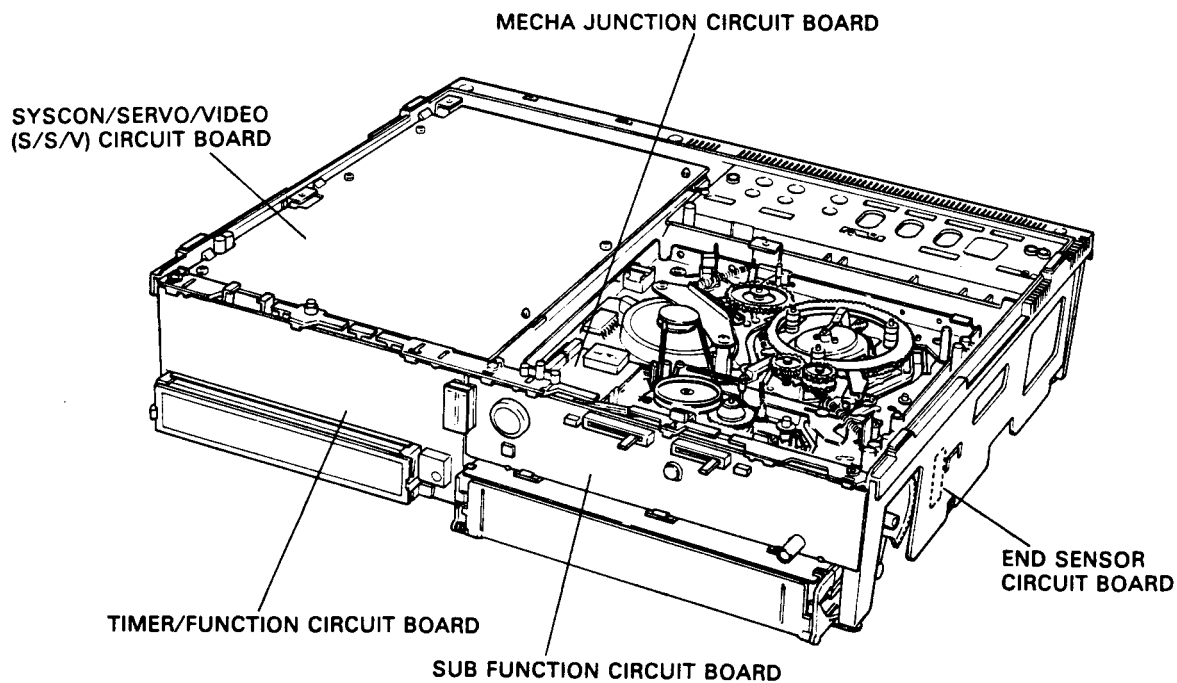


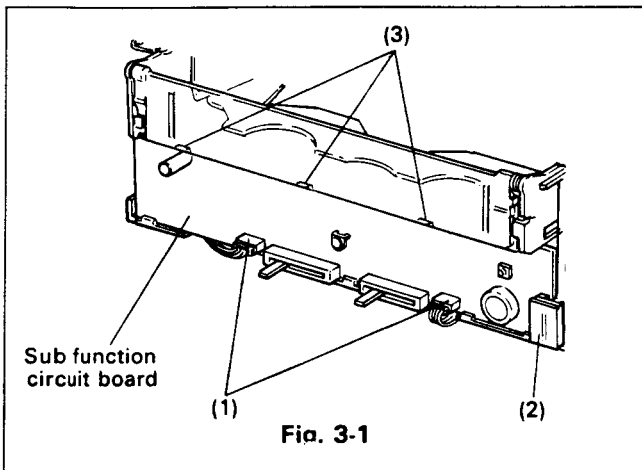
Fig.2-2

Front side

3. REMOVING THE CIRCUIT BOARDS

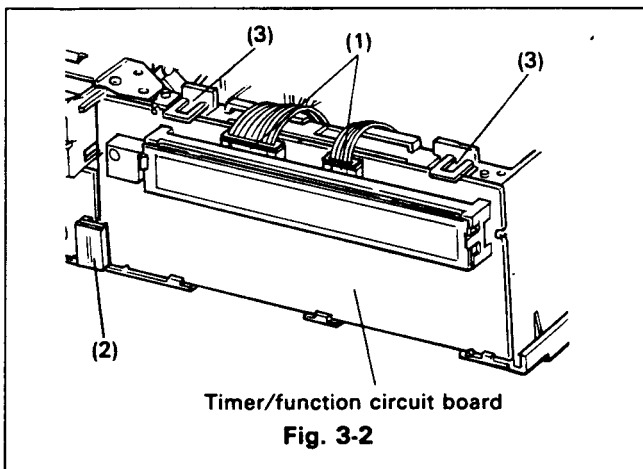
3-1. SUB FUNCTION CIRCUIT BOARD (Figure 3-1)

- (1) Remove the top cover and front panel. (Refer to Items 1-1 and 1-3.)
- (2) Disconnect two wire connectors (1) from the circuit board.
- (3) Remove the junction (2) connecting the sub function circuit board and timer/function circuit board.
- (4) Release three tabs (3) on the top of the circuit board in the direction of the arrow, and lift the circuit board to remove.



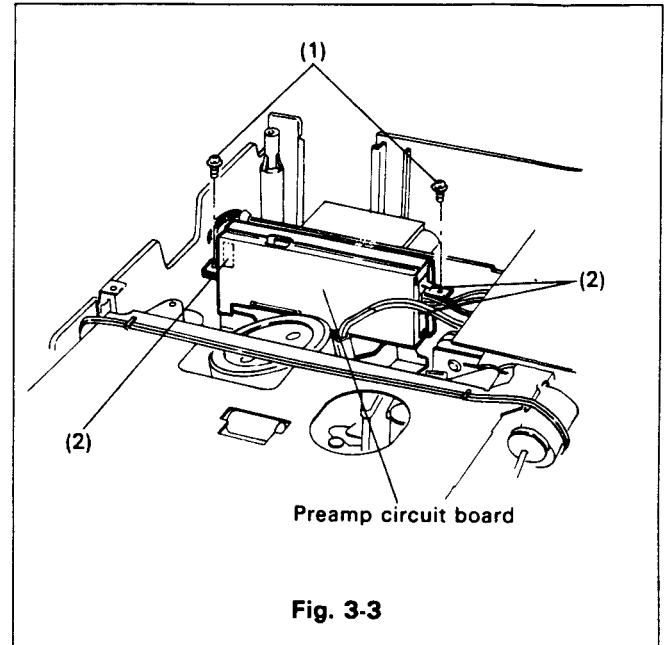
3-2. TIMER/FUNCTION CIRCUIT BOARD (Figure 3-2)

- (1) Remove the top cover and front panel. (Refer to Items 1-1 and 1-3.)
- (2) Disconnect two wire connectors (1) from the circuit board.
- (3) Remove the junction (2) connecting the sub function circuit board and timer/function circuit board.
- (4) Release two tabs (3), and lift the circuit board to remove.



3-3. PREAMP CIRCUIT BOARD (Figure 3-3)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove two screws (1).
- (3) Disconnect three wire connectors (2) from the preamp circuit board.



Note: Be very careful not to damage the drum head circuit board when removing the preamp circuit board.

3-4. TUNER/IF CIRCUIT BOARD (Figure 3-4)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove three screws (1) from the tuner/IF circuit board.
- (3) Release two tabs (2).
- (4) Lift and tilt the tuner/IF circuit board toward the rear panel.
- (5) Disconnect the 75-ohm VHF cable (3).
- (6) Disconnect three wire connectors (4).

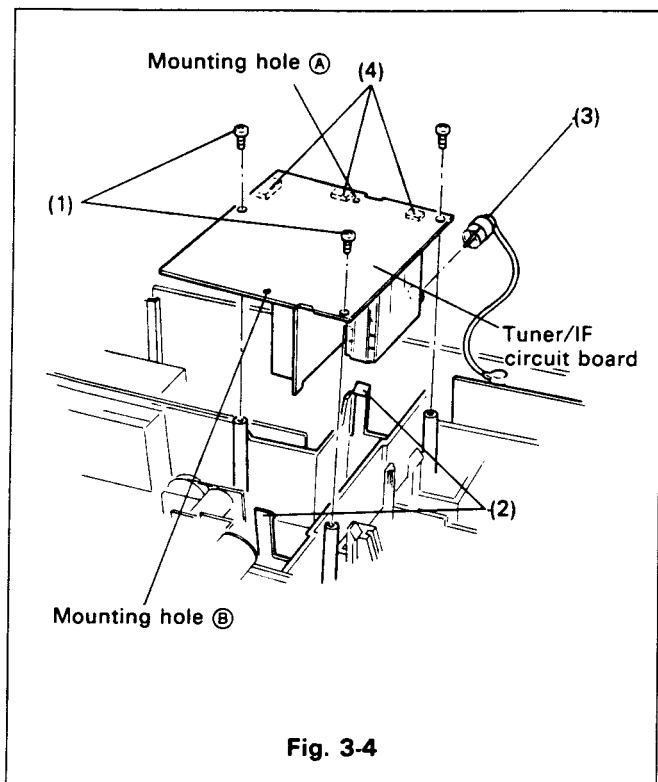


Fig. 3-4

Note: To install the circuit board, align the circuit board-mounting pins with mounting holes A and B.

3-5. POWER/REGULATOR CIRCUIT BOARD (Figure 3-5)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove the bottom cover. (Refer to Item 1-2.)
- (3) Remove the tuner/IF circuit board. (Refer to Item 3-4.)
- (4) Disconnect four wire connectors (1) from the power/regulator circuit board.
- (5) Remove five screws (2).
- (6) Lift the power/regulator unit together with the AC outlet plate to remove.
- (7) Remove four screws (3) to release the power/regulator circuit board from the base.

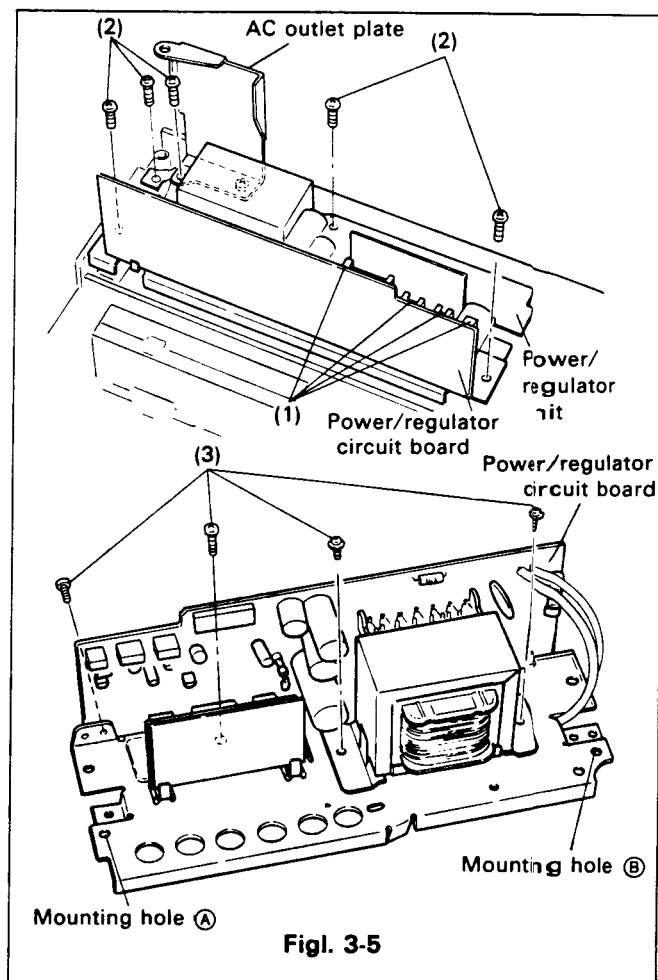


Fig. 3-5

Note: To install the power/regulator unit, align the mounting pins with mounting holes A and B.

3-6. JACK TERMINAL CIRCUIT BOARD (Figure 3-6)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Disconnect the 75-ohm cable (1).
- (3) Disconnect wire connector (2).
- (4) Pull the terminal plate up and remove the jack terminal circuit board.
- (5) Disconnect wire connector (3).

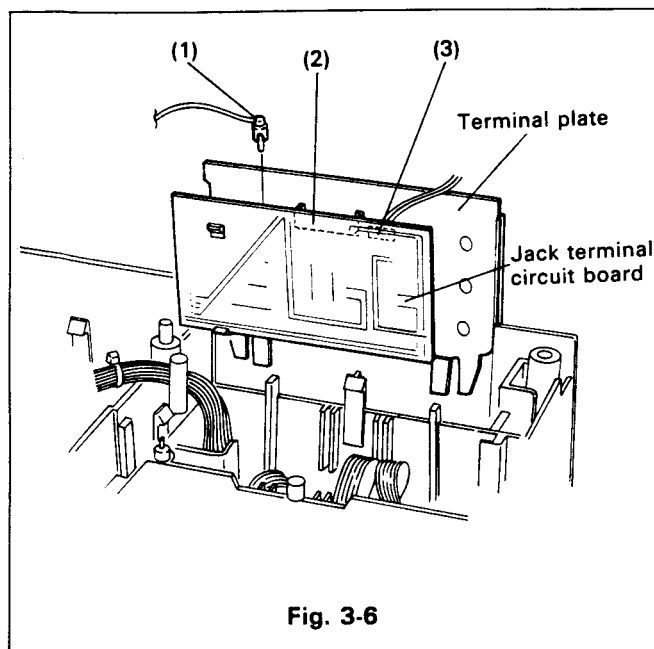


Fig. 3-6

Notes:

1. The jack terminal circuit board is united with the terminal plate.
2. To install the jack terminal unit, fit the terminal plate into the mounting position until it clicks in the locked position.

3-7. AUDIO CIRCUIT BOARD (Figure 3-7-1)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Disconnect four wire connectors (1) from the audio circuit board.
- (3) Release two tabs (2).
- (4) Release the circuit board from two slide hinges (3).

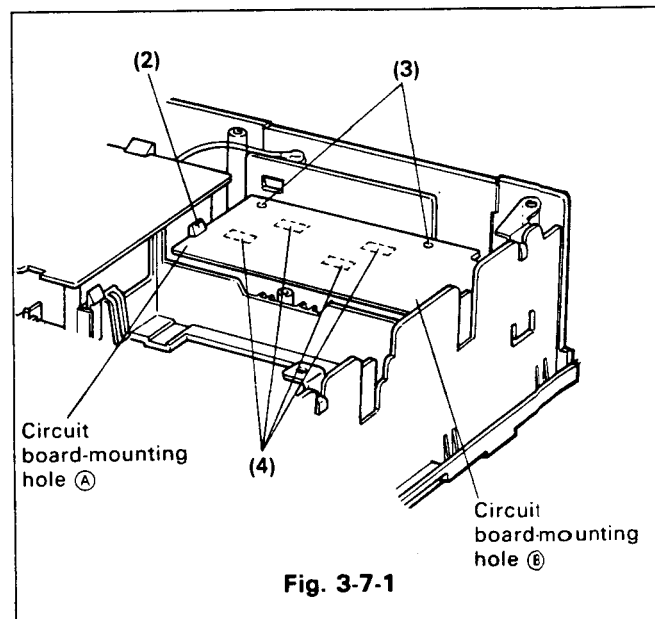


Fig. 3-7-1

To install the circuit board, align the circuit board-mounting pins with mounting holes A and B.

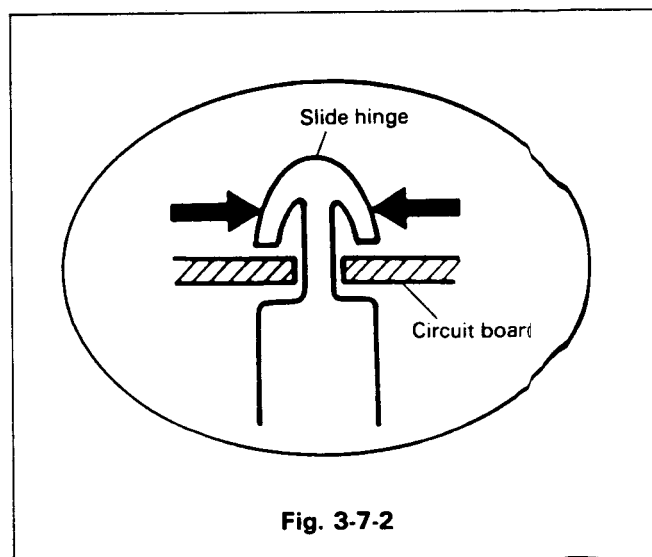
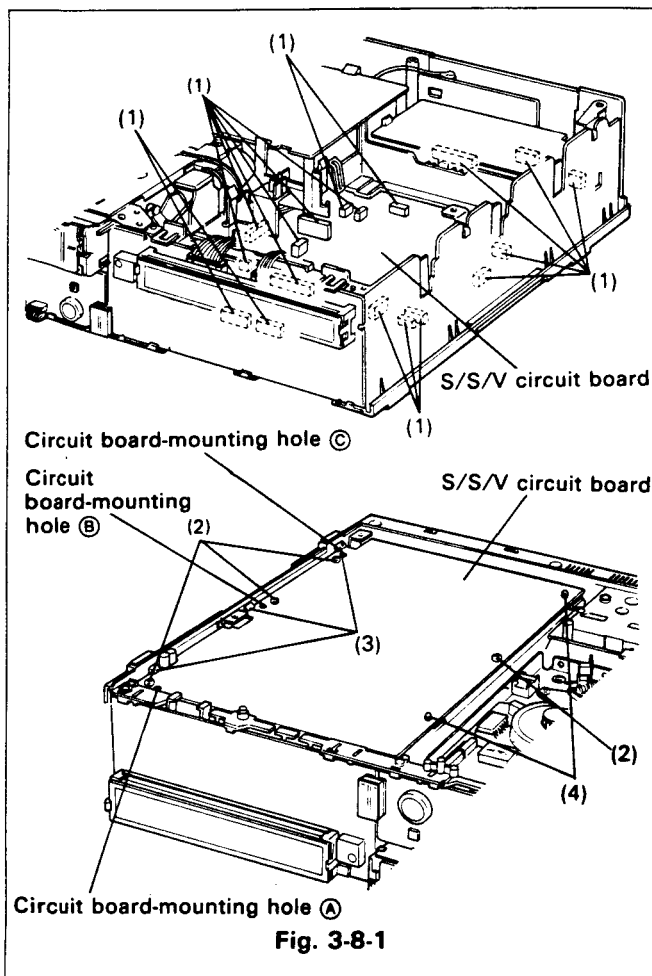


Fig. 3-7-2

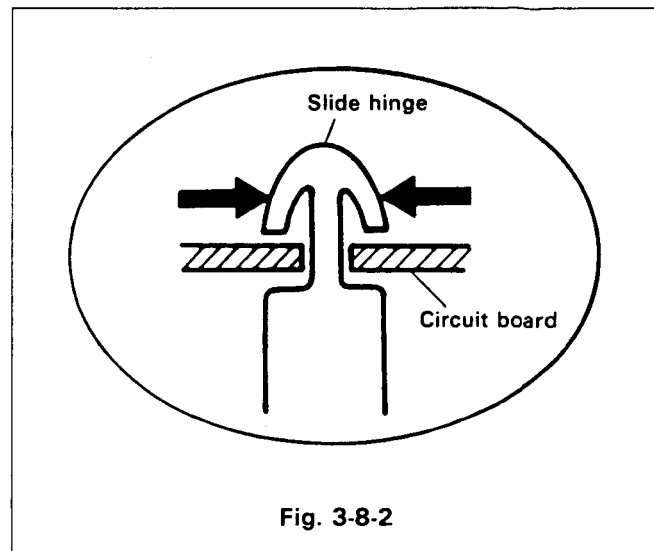
Note: When removing the circuit board from each slide hinge, use pliers to squeeze these hinges in the directions of the arrows shown in the figure to release.

3-8. S/S/V CIRCUIT BOARD (Figure 3-8-1)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove the bottom cover. (Refer to Item 1-2.)
- (3) Perform steps (2) and (3) in the Item 3-7, and raise the audio circuit board toward the rear panel.
- (4) Disconnect eighteen wire connectors (1) from the S/S/V circuit board from inside the VCR.
- (5) Remove four screws (2) from the S/S/V circuit board.
- (6) Release three tabs (3).
- (7) Release the circuit board from the two slide hinges (4).



To install the circuit board, align the circuit board-mounting pins with mounting holes ①, ② and ③.



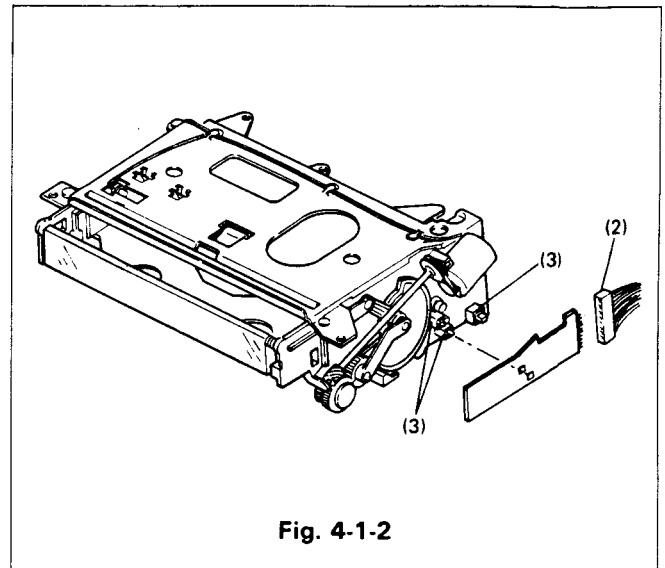
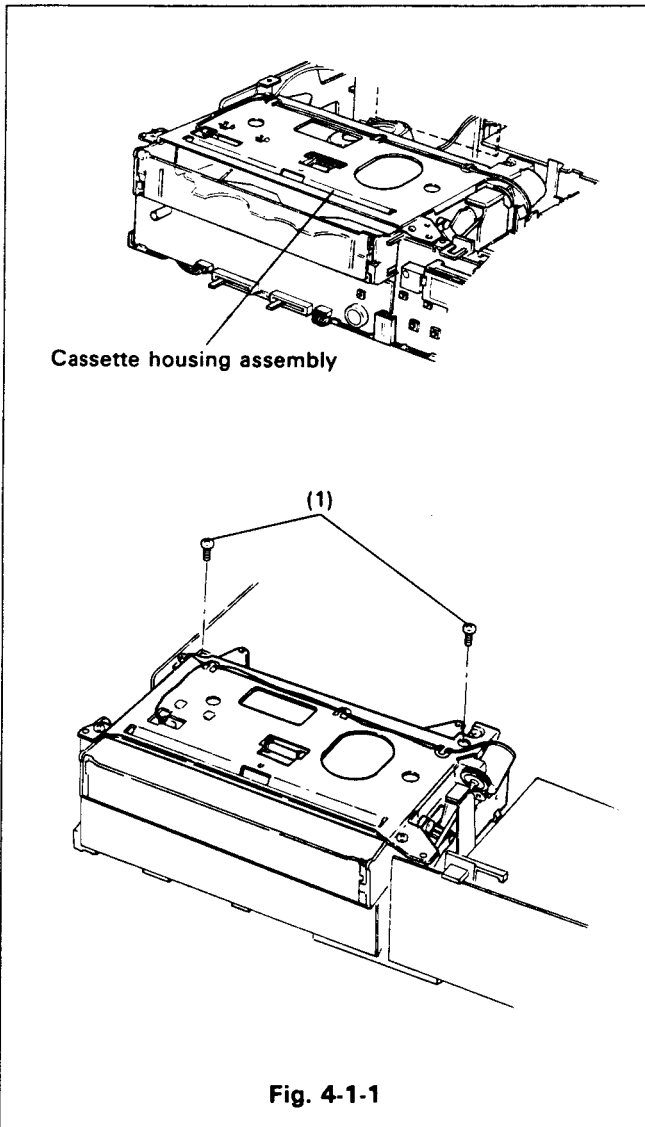
Note: When removing the circuit board from each slide hinge, use pliers to squeeze these hinges in the directions of the arrows shown in the figure to release.

4. REMOVING THE CASSETTE MECHANISM

4-1. REMOVING THE CASSETTE HOUSING ASSEMBLY (Figures 4-1-1, 4-1-2)

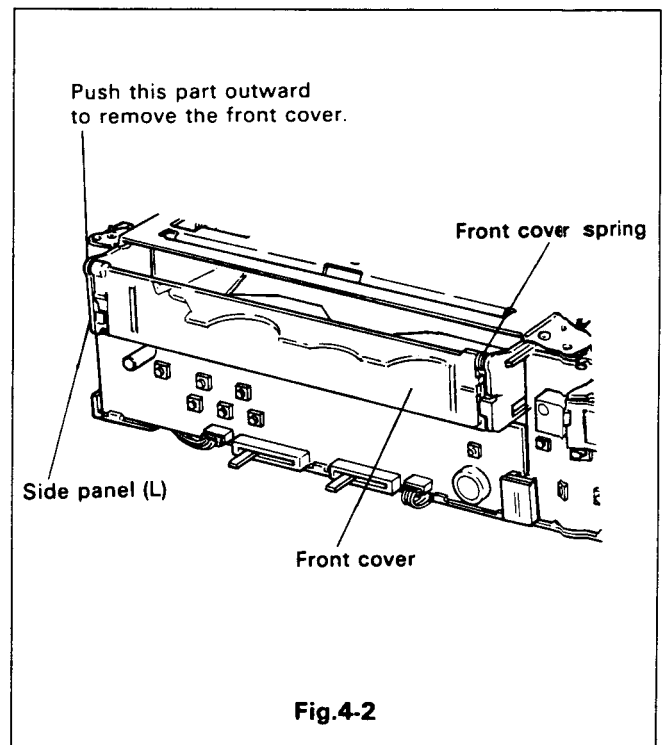
- (1) Remove the top cover and front panel. (Refer to Items 1-1 and 1-3.)
- (2) Remove two screws (1). Pull up the rear part of the cassette housing assembly and pull backwards 4-5 mm carefully to release the claw of the front side of the cassette housing assembly from the chassis. Then carefully pull it out upwards.
- (3) Disconnect connector (2).
- (4) To remove the cassette loading circuit board, release four tabs (3).

Note: The removed screws should be used again to reinstall the cassette housing assembly. Never use screws other than the ones originally removed.



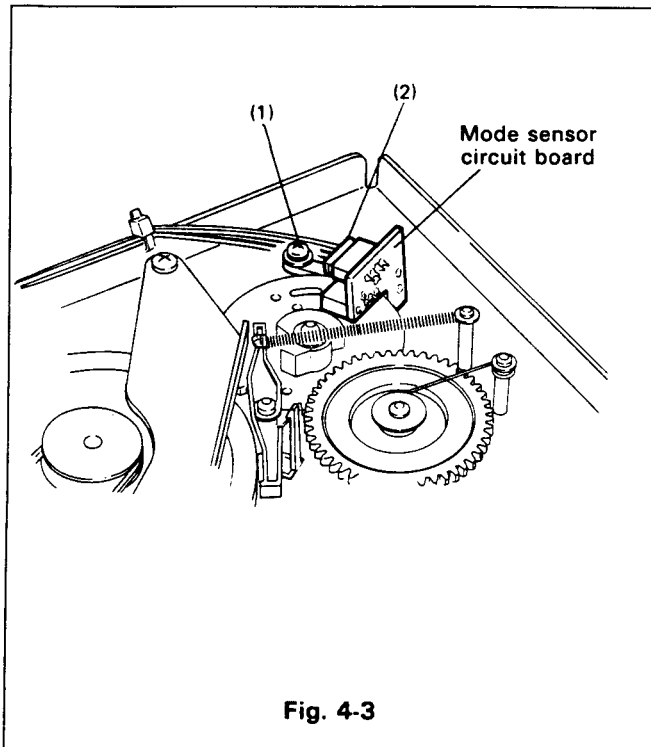
4-2. FRONT COVER (Figure 4-2)

- (1) Push the front cover into the cassette housing.
- (2) Push the side panel (L) outward, and remove the front cover, together with the front cover spring.



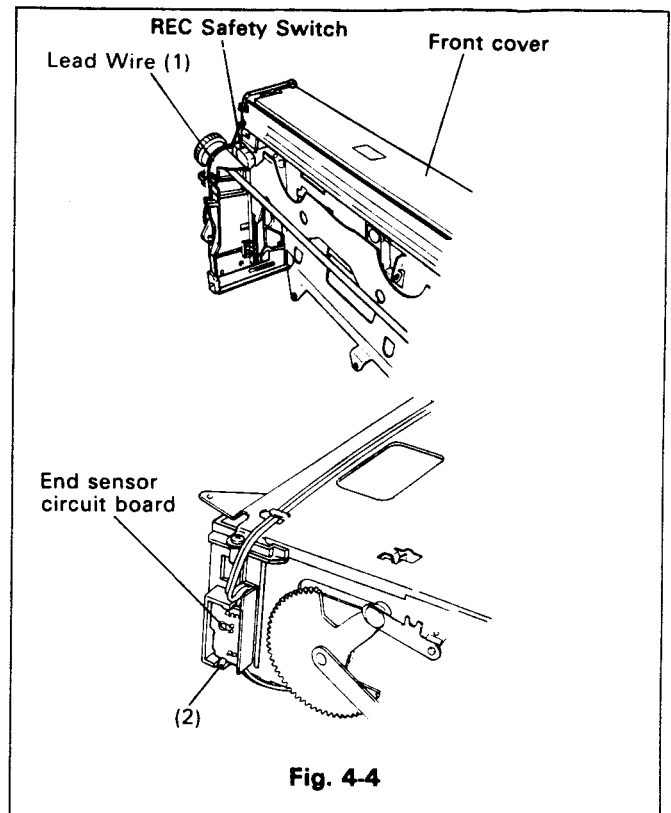
4-3. MODE SENSOR CIRCUIT BOARD (Figure 4-3)

- (1) Remove the bottom cover. (Refer to Item 1-2.)
- (2) Remove screw (1).
- (3) Disconnect wire connector (2) to remove the mode sensor circuit board.



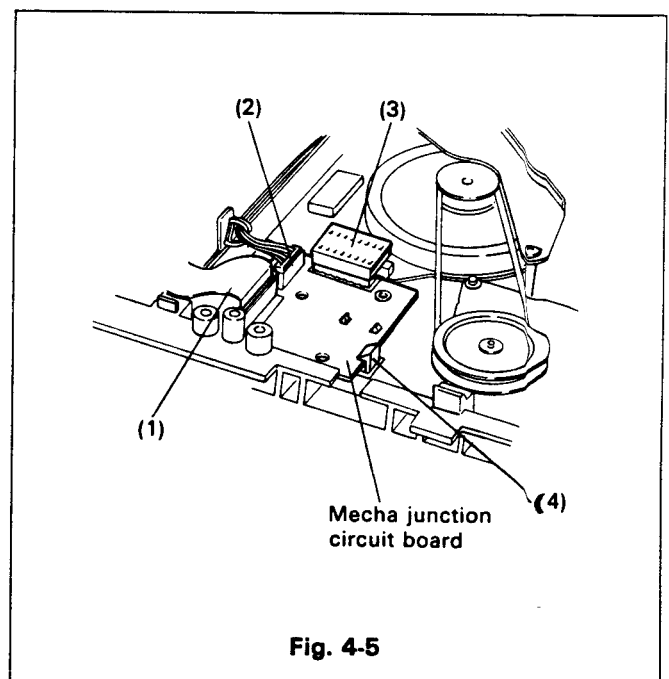
4-4. END SENSOR CIRCUIT BOARD (Figure 4-4)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove the cassette housing assembly. (Refer to Item 4-1.)
- (3) Remove the solder from the two lead wires (1) of the REC Safety Switch located under the front cover.
- (4) Release tab (2) toward the bottom, and lift the end sensor circuit board to remove.



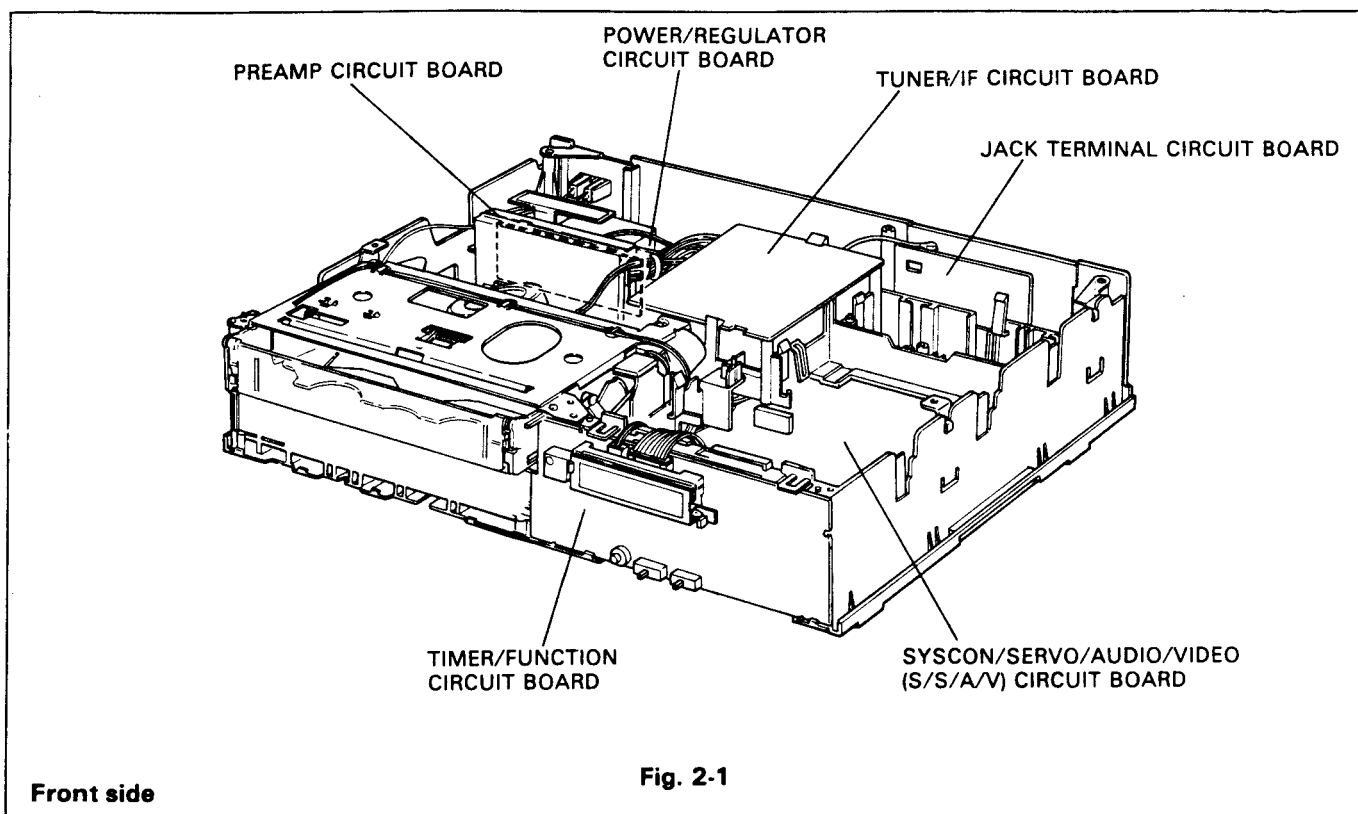
4-5. MECHA JUNCTION CIRCUIT BOARD (Figure 4-5)

- (1) Remove the bottom cover. (Refer to Item 1-2.)
- (2) Disconnect flat cable (1).
- (3) Disconnect connector (2) and junction (3).
- (4) Release tabs (4) and lift the circuit board a little to remove.

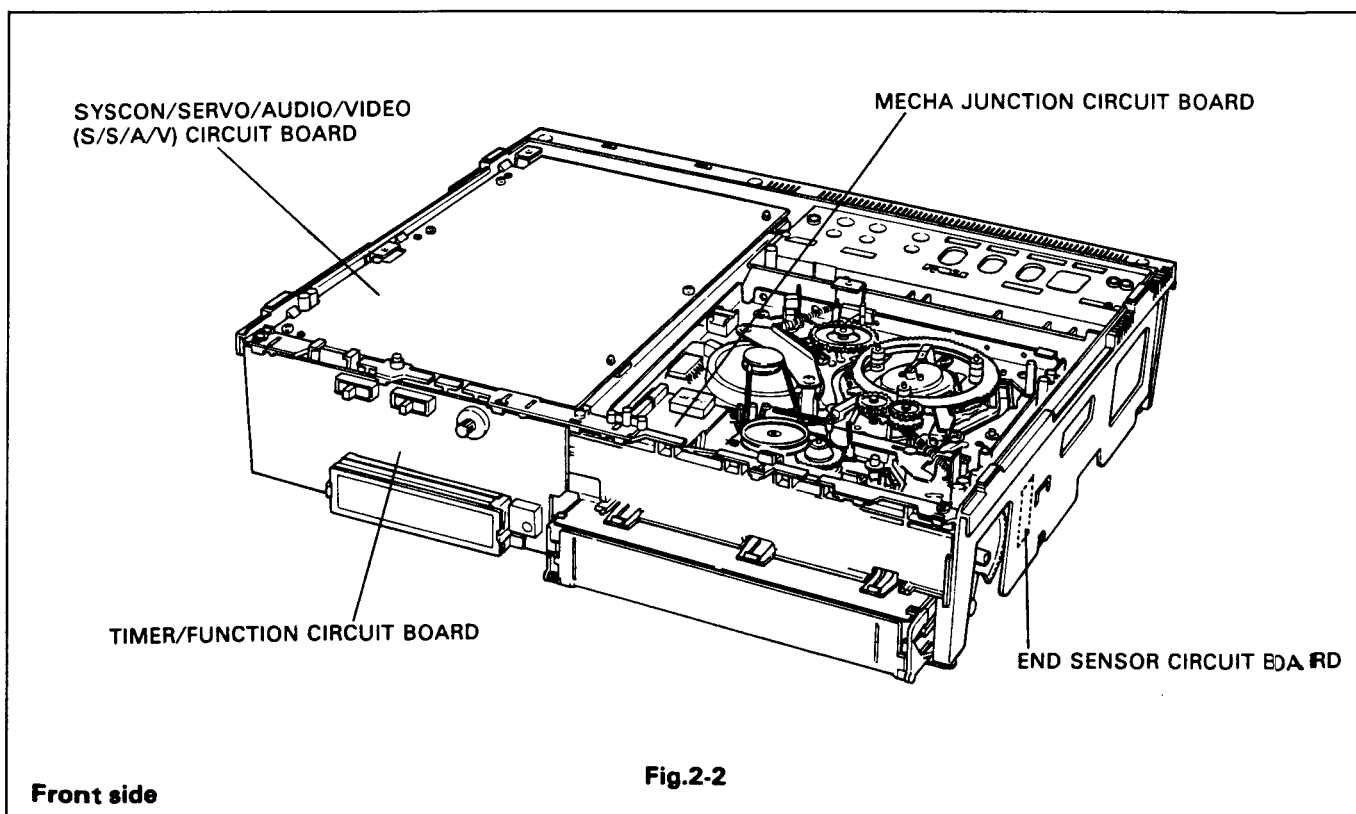


2. CIRCUIT BOARD LOCATIONS

2-1. TOP VIEW



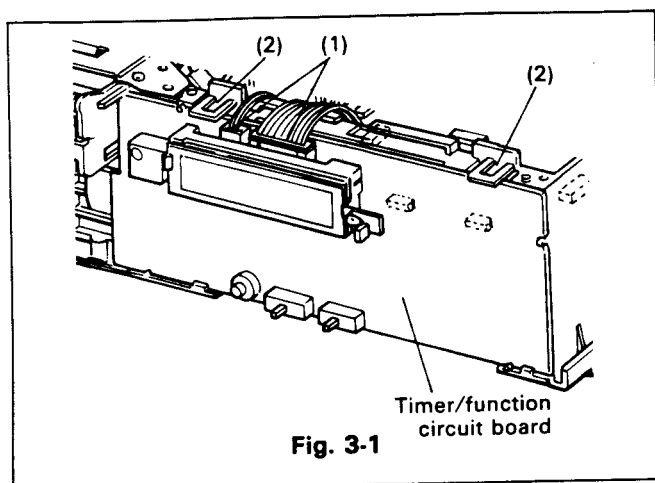
2-2. BOTTOM VIEW



3. REMOVING THE CIRCUIT BOARDS

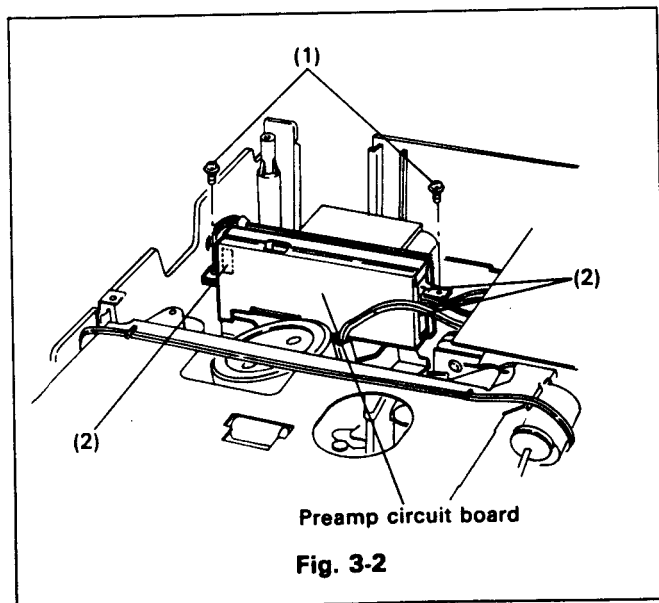
3-1. TIMER/FUNCTION CIRCUIT BOARD (Figure 3-1)

- (1) Remove the top cover and front panel. (Refer to Items 1-1 and 1-3.)
- (2) Disconnect two wire connectors (1) from the circuit board.
- (3) Release two tabs (2), and lift the circuit board to remove.



3-2. PREAMP CIRCUIT BOARD (Figure 3-2)

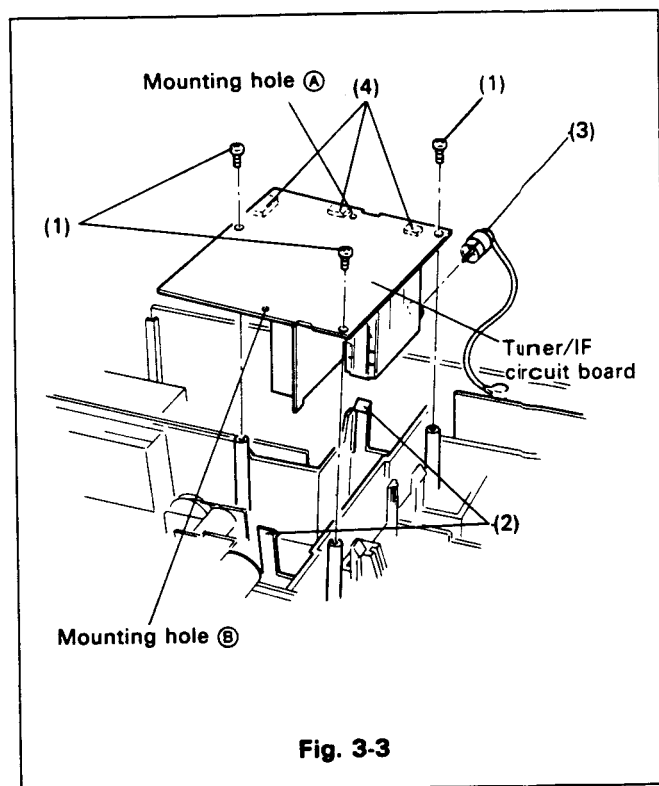
- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove two screws (1).
- (3) Disconnect three wire connectors (2) from the preamp circuit board.



Note: Be very careful not to damage the drum head circuit board when removing the preamp circuit board.

3-3. TUNER/IF CIRCUIT BOARD (Figure 3-3)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove three screws (1) from the tuner/IF circuit board.
- (3) Release two tabs (2).
- (4) Lift and tilt the tuner/IF circuit board toward the rear panel.
- (5) Disconnect the 75-ohm VHF cable (3).
- (6) Disconnect three wire connectors (4).



Note: To install the circuit board, align the circuit board-mounting pins with mounting holes A and B.

3-4. POWER/REGULATOR CIRCUIT BOARD (Figure 3-4)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove the bottom cover. (Refer to Item 1-2.)
- (3) Remove the tuner/IF circuit board. (Refer to Item 3-3.)
- (4) Disconnect four wire connectors (1) from the power/regulator circuit board.
- (5) Remove five screws (2).
- (6) Lift the power/regulator unit together with the AC outlet plate to remove.
- (7) Remove four screws (3) to release the power/regulator circuit board from the base.

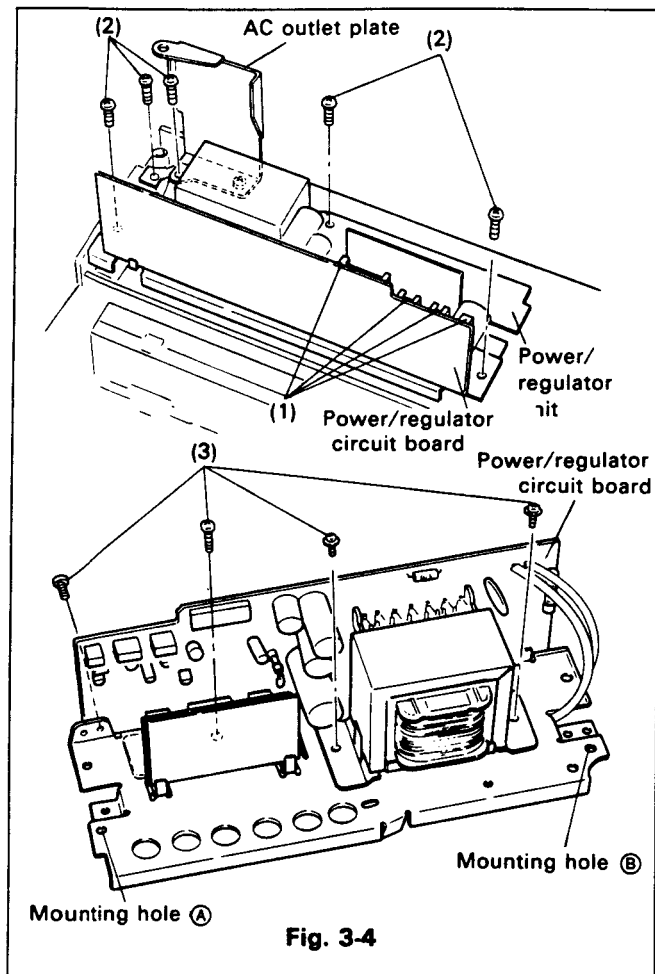


Fig. 3-4

Note: To install the power/regulator unit, align the mounting pins with mounting holes (A) and (B).

3-5. JACK TERMINAL CIRCUIT BOARD (Figure 3-5)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Disconnect the 75-ohm cable (1).
- (3) Disconnect wire connector (2).
- (4) Pull the terminal plate up and remove the jack terminal circuit board.
- (5) Disconnect wire connector (3).

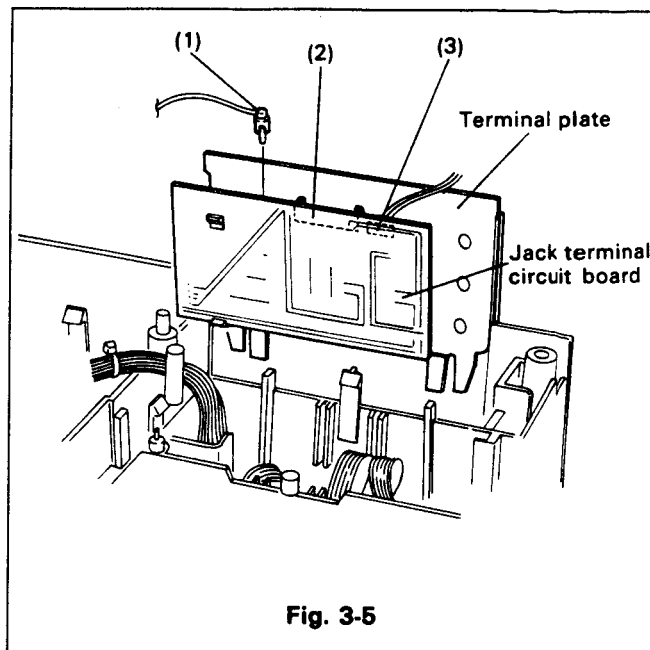


Fig. 3-5

Notes:

1. The jack terminal circuit board is united with the terminal plate.
2. To install the jack terminal unit, fit the terminal plate into the mounting position until it clicks in the locked position.

3-6. S/S/A/V CIRCUIT BOARD (Figure 3-6-1)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) Remove the bottom cover. (Refer to Item 1-2.)
- (3) Disconnect eighteen wire connectors (1) from the S/S/A/V circuit board from inside the VCR.
- (4) Remove four screws (2) from the S/S/A/V circuit board.
- (5) Release three tabs (3).
- (6) Release the circuit board from the two slide hinges (4).

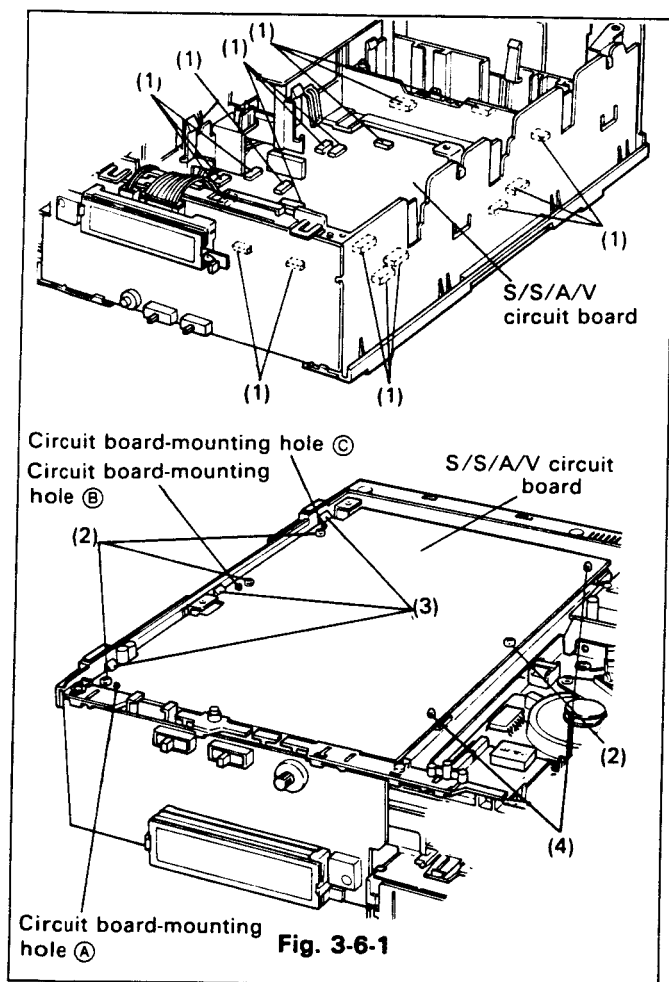


Fig. 3-6-1

To install the circuit board, align the circuit board-mounting pins with mounting holes (A), (B) and (C).

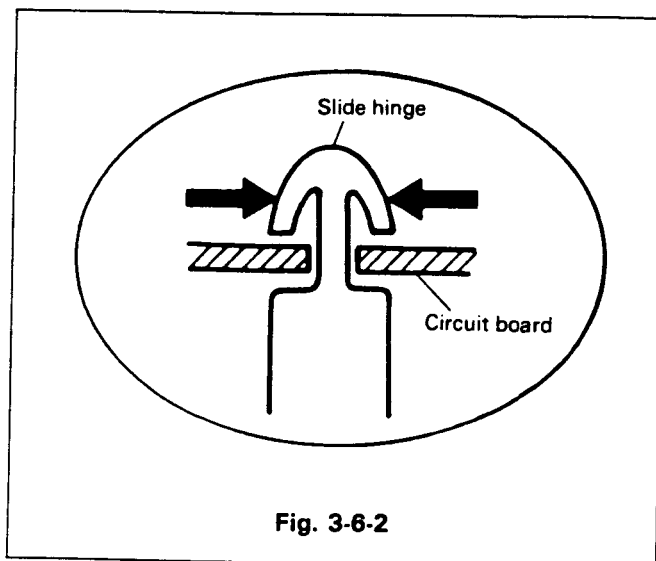


Fig. 3-6-2

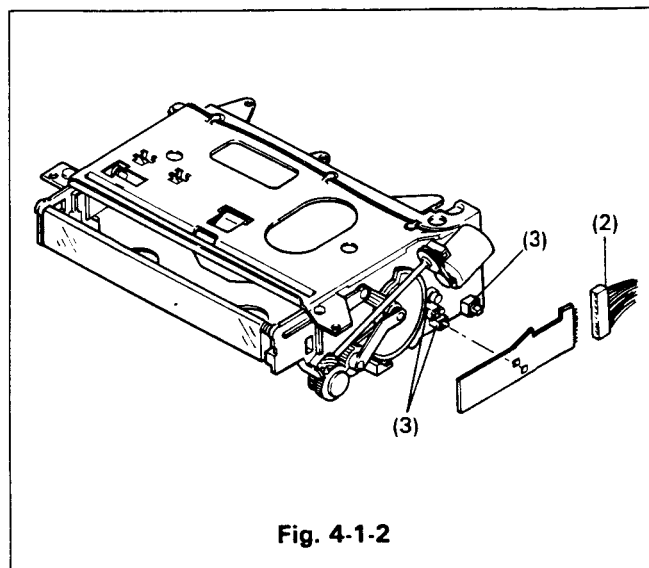
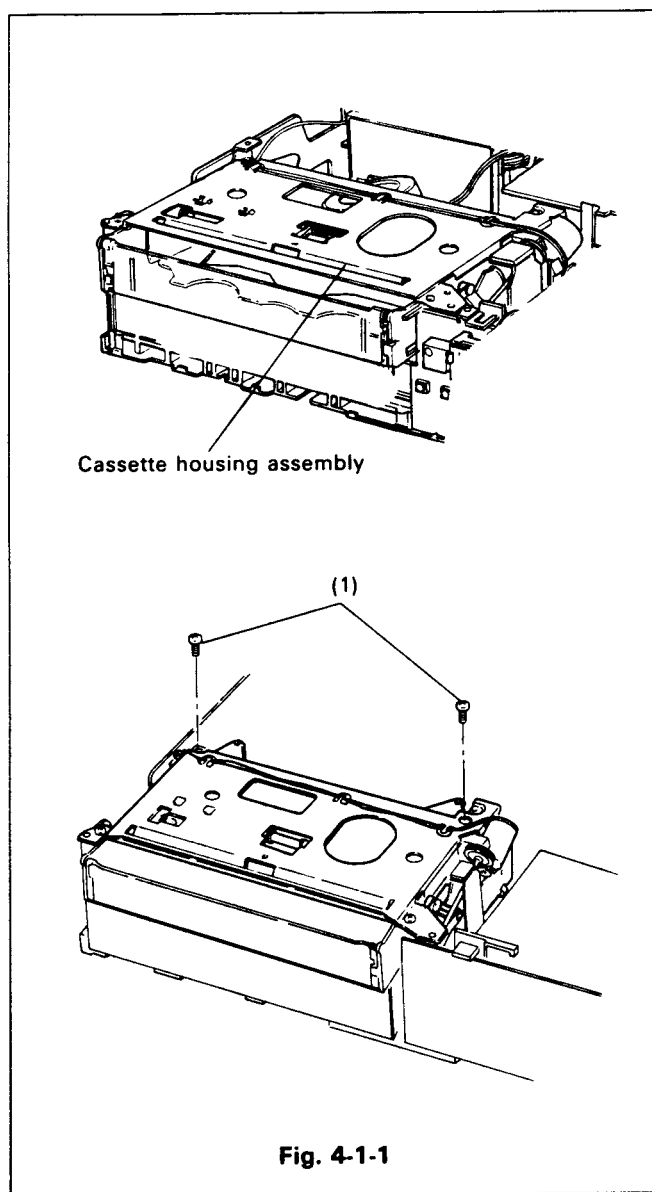
Note: When removing the circuit board from each slide hinge, use pliers to squeeze these hinges in the directions of the arrows shown in the figure to release.

4. REMOVING THE CASSETTE MECHANISM

4-1. REMOVING THE CASSETTE HOUSING ASSEMBLY (Figures 4-1-1, 4-1-2)

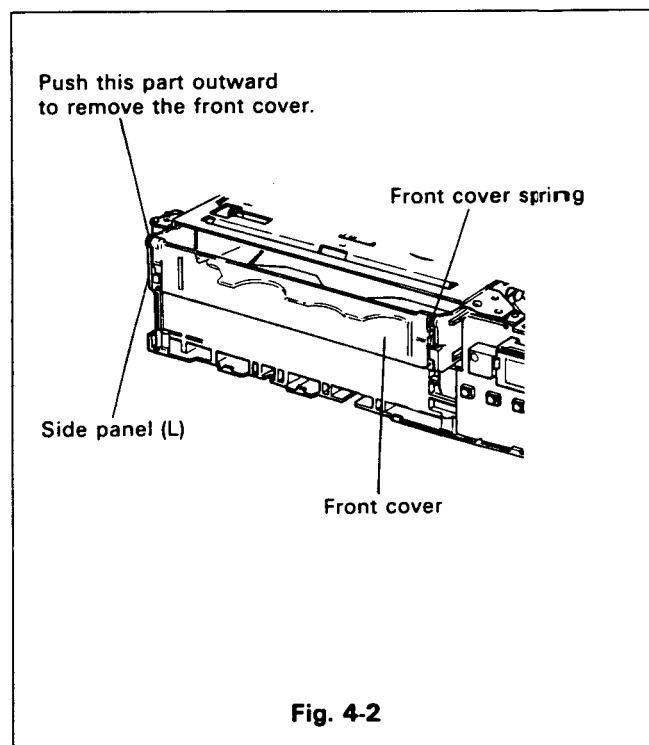
- (1) Remove the top cover and front panel. (Refer to Items 1-1 and 1-3.)
- (2) Remove two screws (1). Pull up the rear part of the cassette housing assembly and pull backwards 4-5 mm carefully to release the claw of the front side of the cassette housing assembly from the chassis. Then carefully pull it out upwards.
- (3) Disconnect connector (2)
- (4) To remove the cassette loading circuit board, release four tabs (3).

Note: The removed screws should be used again to reinstall the cassette housing assembly. Never use screws other than removed ones.



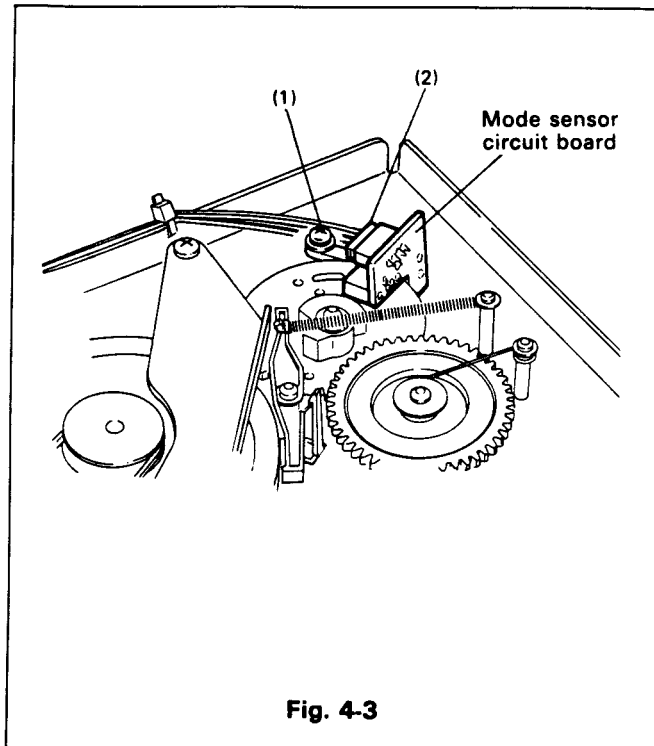
4-2. FRONT COVER (Figure 4-2)

- (1) Push the front cover into the cassette housing.
- (2) Push the side panel (L) outward, and remove the front cover, together with the front cover spring.



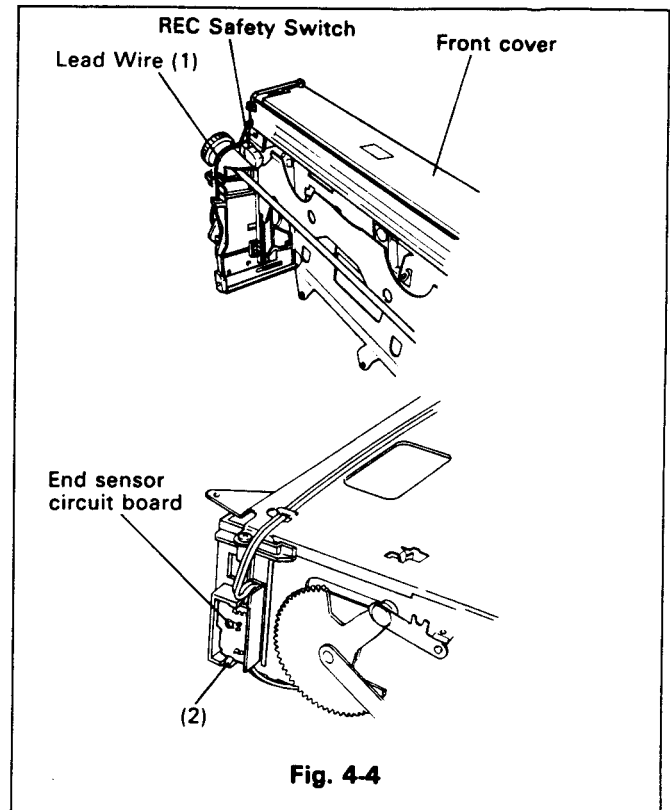
4-3. MODE SENSOR CIRCUIT BOARD (Figure 4-3)

- (1) Remove the bottom cover. (Refer to Item 1-2.)
- (2) Remove screw (1).
- (3) Disconnect wire connector (2) to remove the mode sensor circuit board.



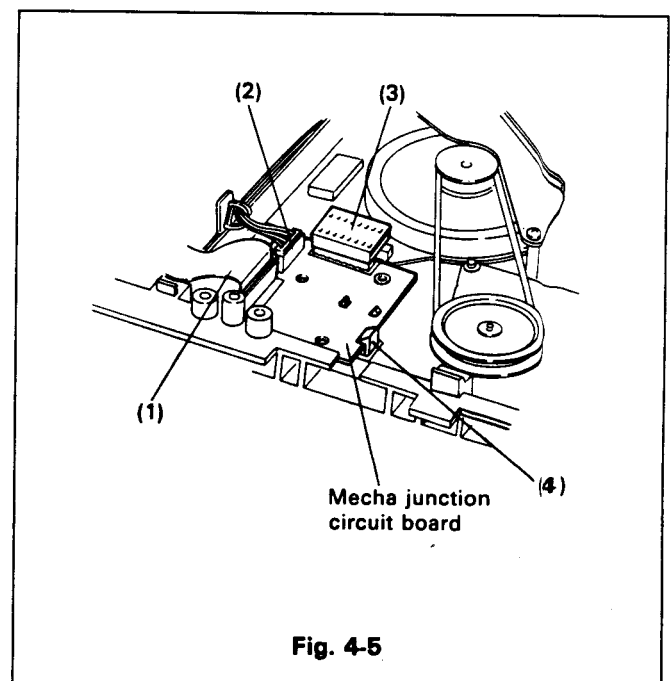
4-4. END SENSOR CIRCUIT BOARD (Figure 4-4)

- (1) Remove the top cover. (Refer to Item 1-1.)
- (2) According to Item 4-1, remove the cassette housing assembly.
- (3) Remove the solder from the two lead wires (1) of the REC Safety Switch located under the front cover.
- (4) Release tab (2) toward the bottom, and lift the end sensor circuit board to remove.



4-5. MECHA JUNCTION CIRCUIT BOARD (Figure 4-5)

- (1) Remove the bottom cover. (Refer to Item 1-2.)
- (2) Disconnect flat cable (1).
- (3) Disconnect connector (2) and junction (3).
- (4) Release tab (4) and lift a little circuit board to remove.



SECTION 3 ADJUSTMENT

(N9053G/N9055G)

1. MECHANICAL ADJUSTMENT

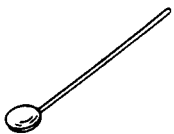
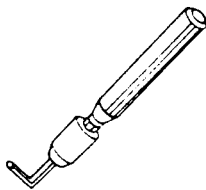
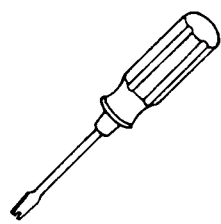
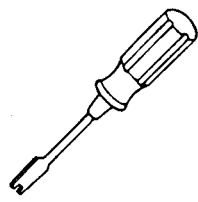
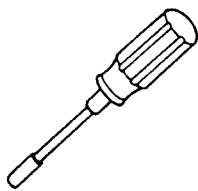
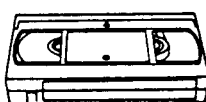
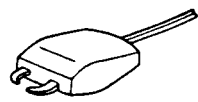
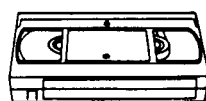
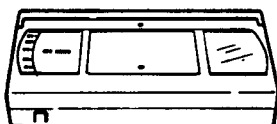
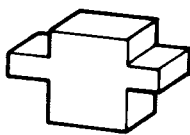
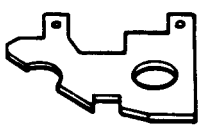
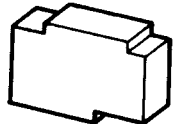
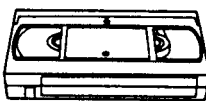
1-1. SERVICING JIGS AND TOOLS

NOTE:

Circuit boards in SECTION 3 are applied as follows.

S/S/A/V for N9053G

S/S/V for N9055G

J-1 Checking mirror For tape flow check and adjustment procedures  16950871	J-2 Hexagonal driver For guide roller screw  16951281	J-3 Adjustment driver For guide roller  16951291	J-4 Adjustment driver For tapered pin of ACE head  16951301
J-5 Box driver For ACE head, guide pole and reverse pin  16951311	J-6 Alignment tape (MH-2) Overall adjusting of picture quality and tracking MH-2 79V20196 	J-7 Cleaning liquid (isopropyl alcohol) cleaning cloth for cleaning  NOTE* 16950001	J-8 Head demagnetizer demagnetizing audio heads  NOTE*
J-9 Cleaning cassette tape For cleaning video heads  NOTE*	J-10 ● Torque meter (600g/cm) Ass'y 79V20199 ● Torque meter 79V20200 (600g/cm) ● Torque meter adaptor 79V21508 (Substitute 79V20201) 	J-11 Back tension cassette gauge 79V20202 	J-12 Height Gauge AM-2 Jig  16951131
J-13 Master Plane B Jig  16951381	J-14 Height Gauge BM-2 Jig  16951441	J-15 Cassette tape (E-120) For checking tape path  NOTE*	

Note: This item not available from parts dept.

Fig. 1-1

1-2. MECHANISM ASSEMBLY

1-2-1 Removing the mechanism assembly (Figure 1-2)

- (1) Remove the top cover and front panel. (Refer to Items 1-1 and 1-3)
- (2) Remove the tuner/IF circuit board.
(Refer to Item 3-4.)
- (3) Remove the preamp circuit board.
(Refer to Item 3-3.)
- (4) Remove the cassette housing assembly.
(Refer to Item 4-1.)

- (5) Disconnect wire connector and drum heater (yellow) of the rotary drum assembly.
- (6) Remove two screws of the lead wires with ground lug.
- (7) Disconnect two connectors from the ACE head assembly.
- (8) Disconnect connectors from the full erase head.
- (9) Disconnect the flat cable from the mecha junction circuit board.

Note: The removed screws should be used again to reinstall the cassette housing assembly. Never use screws other than removed ones.

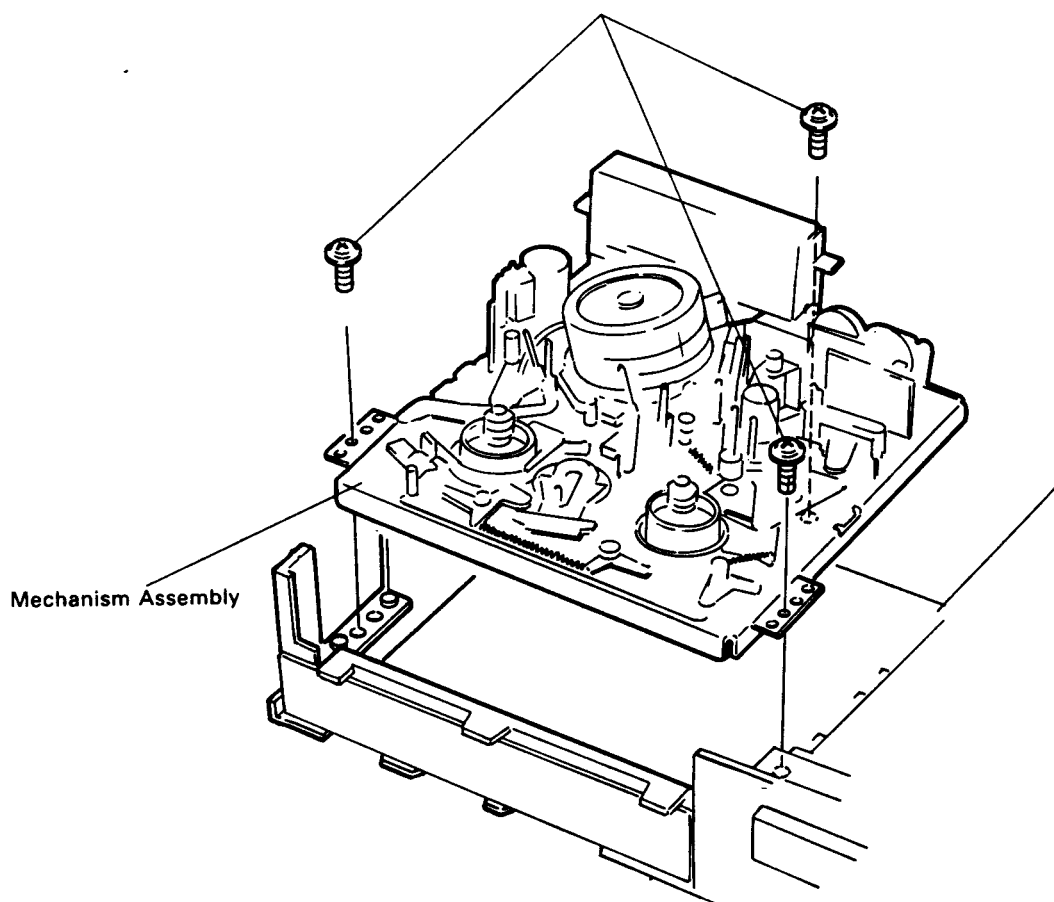
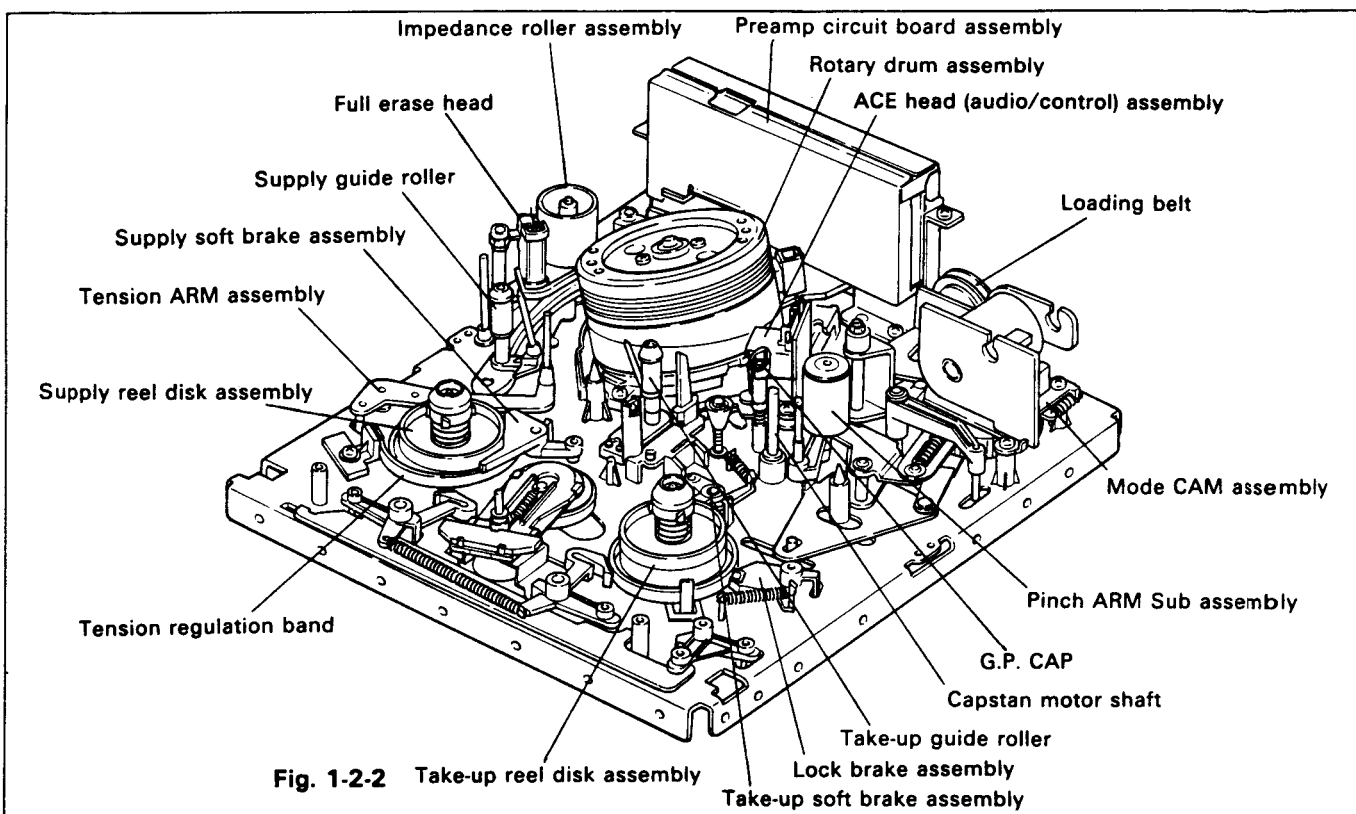


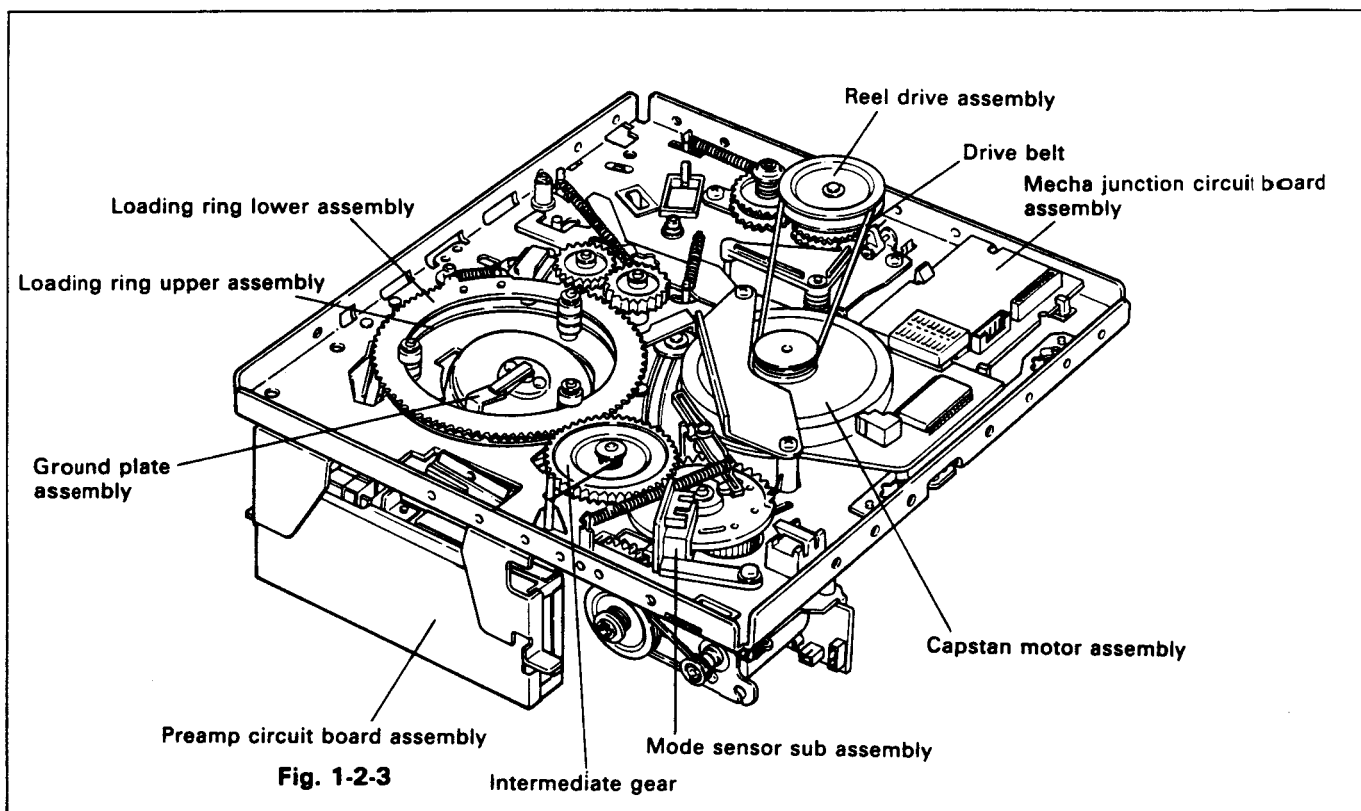
Fig. 1-2

1-2-2 Mechanism parts locations

Top view



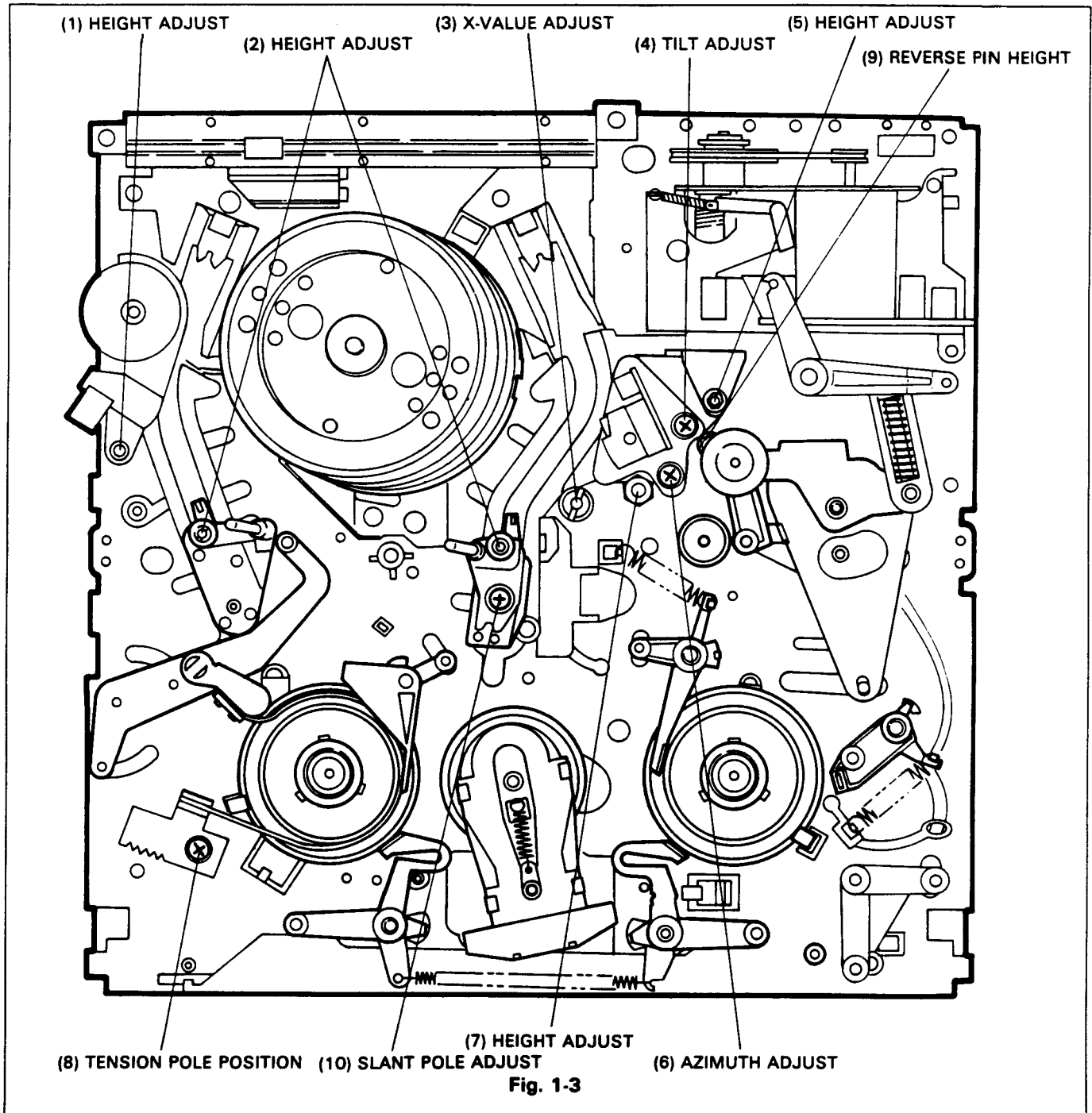
Bottom view



1-3. BEFORE DISASSEMBLING PARTS ON THE CHASSIS (Figure 1-3)

Do not turn the adjusting screws shown below when removing adjacent parts.

- | | |
|---|--|
| (1) Supply guide pole height adjusting nut. | (6) ACE Head azimuth adjusting screw. |
| (2) Take-up/supply guide roller height adjusting screw. | (7) Take-up guide pole height adjusting nut (cap per). |
| (3) ACE Head X value adjusting nut. | (8) Tension band fixing screw. |
| (4) ACE Head tilt adjusting screw. | (9) Reverse pin height adjusting nut. |
| (5) ACE Head height adjusting nut. | (10) Slant pole adjusting screw. |

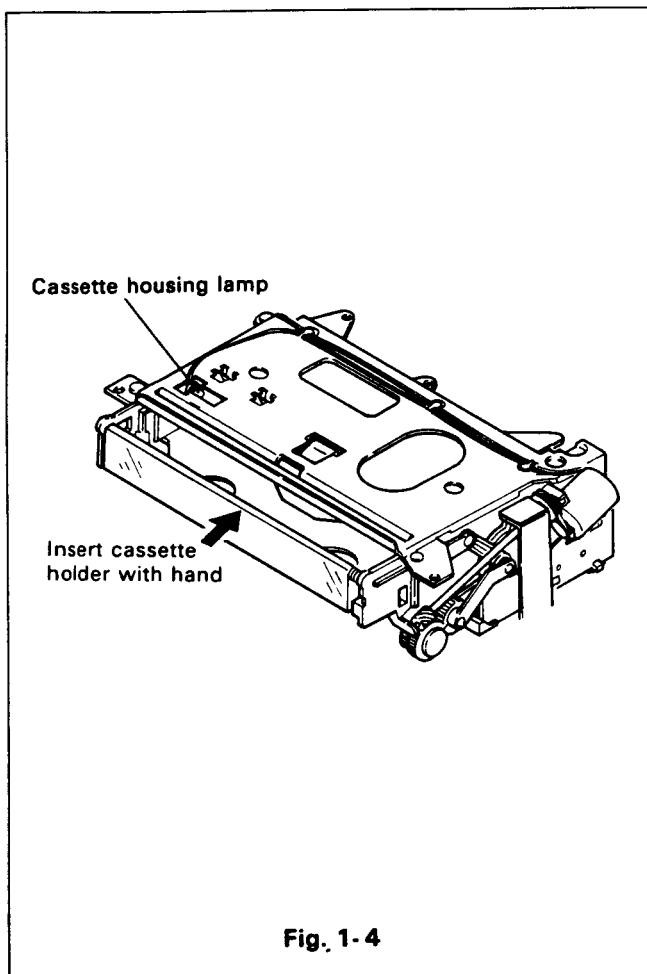


Note: When replacing parts and removing the nylon nut for adjustment, be sure to use the removed nylon nut.

1-4. BEFORE ADJUSTING THE MECHANISM (Figure 1-4)

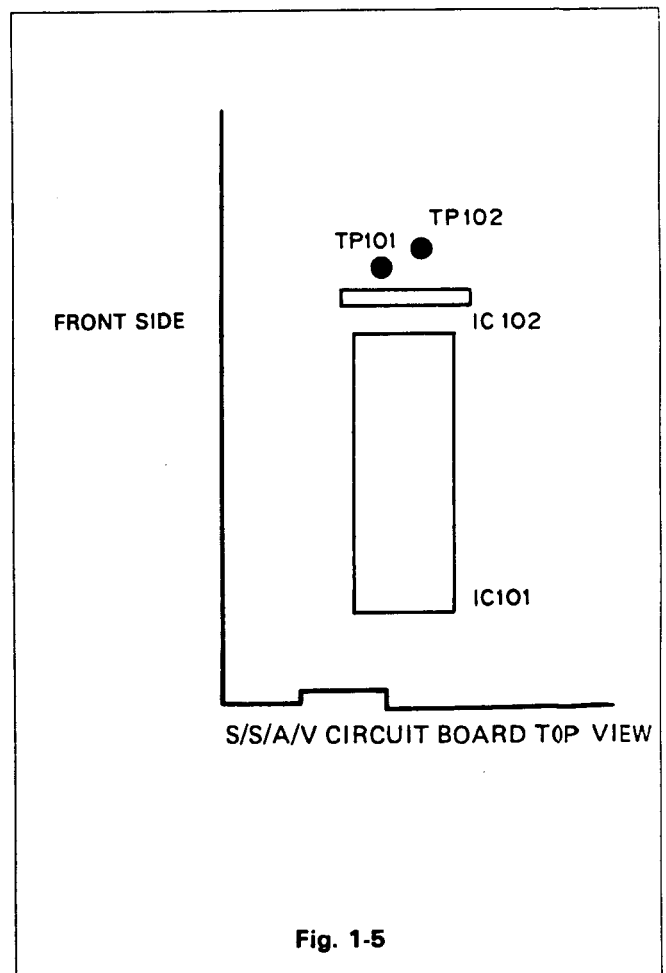
"Adjustment procedures" have been written as a guide to achieve proper operation after replacing the mechanism parts (when required by normal wear and tear or accidental damage).

Since the mechanism adjustment procedures are closely related to the adjustment of the electrical circuitry, and form the basis of the electrical circuitry adjustment procedures, carefully follow the mechanism procedures by observing the proper precautions.



1-5. SERVICING PRECAUTIONS (Figure 1-5)

- (1) Pay special attention to how and where the unit is placed when removing the exterior casing of the unit, and when servicing with the circuit boards removed.
- (2) Prevent the loss of screws by putting every removed screws into a container stored at one location.
- (3) Since the surface area of the left and right sides of the unit is small, take special precautions when working with the unit standing on its side so that it will not fall over.
- (3) When operating without using a cassette, short TP101 and TP102 on the S/S/A/V circuit board shown in Fig. 1-5 with a clip.



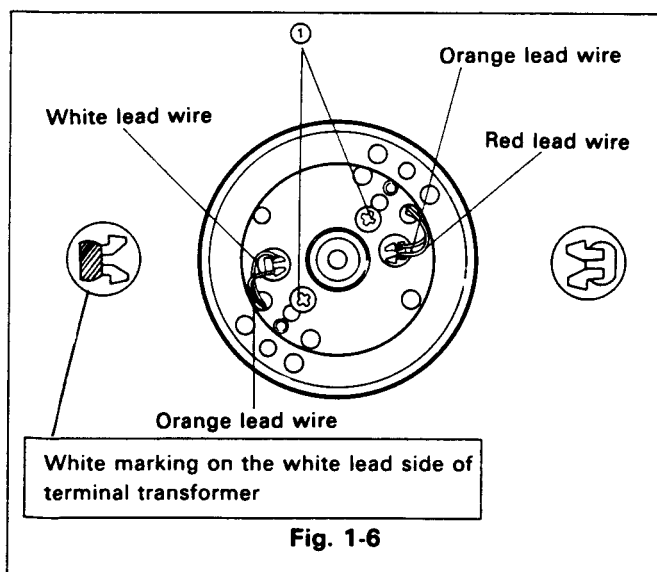
1-6. REPLACEMENT OF UPPER ROTATING DRUM ASSEMBLY (Figure 1-6)

- (1) Remove the solder from the four lead wires that connect the video heads to the terminal transformer. (Perform this removal quickly so as not to damage the insulation of the lead wires.)
- (2) Remove two screws ①, then lift the rotating drum assembly upward and remove it.
- (3) Use alcohol (isopropyl) to clean the flange surface of the lower drum and the surface on the new rotating drum assembly that will come into contact with the flange. Position the rotating drum assembly so that the wire is aligned with the white marking on the shaded area of the terminal transformer, as shown in Fig. 1-6, then carefully slide it down into place.

Note:

- 1) Be sure not to touch the head tips, or strike and damage them.
- 2) If the rotating drum assembly should become hooked on some obstruction before it has been slid completely into place, do not attempt to force it. Remove it and try again.

- (4) Tighten two screws ① alternately, then solder the four lead wires to their correct positions on the terminal transformer, and make sure that all connections are solid and secure.
- (5) After the rotating drum assembly has been replaced, be sure to carry out the following checks and adjustments.
 - 1) Control head phase adjustment (refer to Section 3-4)
 - 2) Playback switching point adjustment (refer to Section 3-1).
 - 3) Checking and adjustment of entire video and audio systems (refer to Sections 4-2, 4-3 and 4-5).

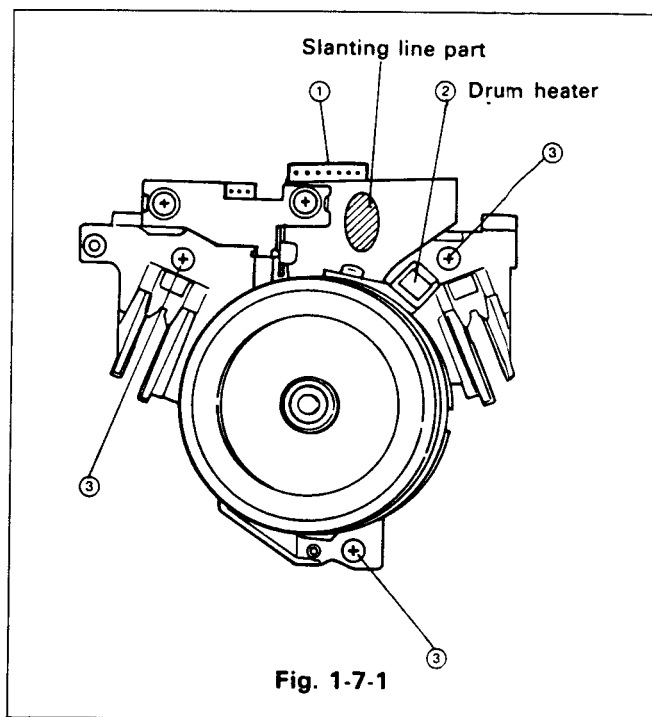


1-7. REPLACEMENT OF DRUM ASSEMBLY (Figure 1-7)

- (1) Remove the preamp circuit assembly. (Refer to Item 3-3.)
- (2) Remove the drum assembly connector ① and drum heater ②. (When removing connector ① hold down the slanting line part of the print substrate.)
- (3) Remove the three screws ③ and then remove the drum assembly.

Note: Do not touch the drum head tips or damage the drum assembly during this procedure.

- (4) Follow the above instructions in reverse order to install the drum assembly.



- (5) After replacing, check and adjust as follows.
 - 1) Adjust tape path. (Refer to Section 2.)
 - 2) Adjust for compatibility. (Refer to Section 3.)
 - 3) Make necessary adjustments to the servo system, video system, and audio system. (Refer to Sections 4-2, 4-3 and 4-5.)

NOTE (N9053G only)

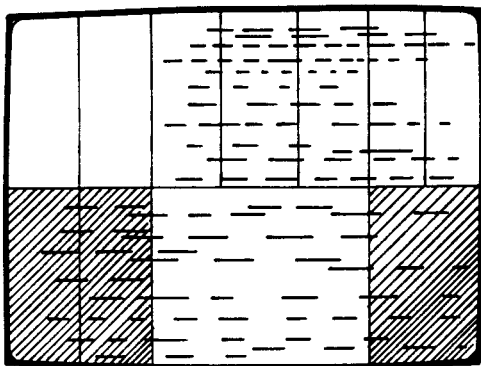
The following items must be checked after replacing the drum assembly.

When you have replaced the drum assembly of the unit that do not have the capacitor *C654 0.022μF on the PCB S/S/V or S/S/A/V, make sure whether there is a phenomenon described as follows. (Refer to the illustration below.)

In some cases, the noise with colored dots appears on the entire picture screen as shown in the illustration. In this case add a ceramic capacitor 0.022μF between the pin (3) and pin (4) of the drum motor connector C1604 on the PCB S/S/V or S/S/A/V.

The exactly same phenomenon may possibly appear when you have replaced the PCB S/S/V or S/S/A/V, cure it in the same manner as above.

***Note:** C654 is the capacitor connected between the pins (3) and (4) of the connector CN604 on the PCB S/S/V or S/S/A/V.



(6) Handling of Service Drum Package

Remove the drum from the inner box as shown in the figure below. Remove the three black screws from inside of the box, remove the board, and then remove the drum assembly.

Note:

The drum assembly is precisely adjusted. Handle carefully to prevent it from becoming dirty, scratched, damaged or deformed in any way.

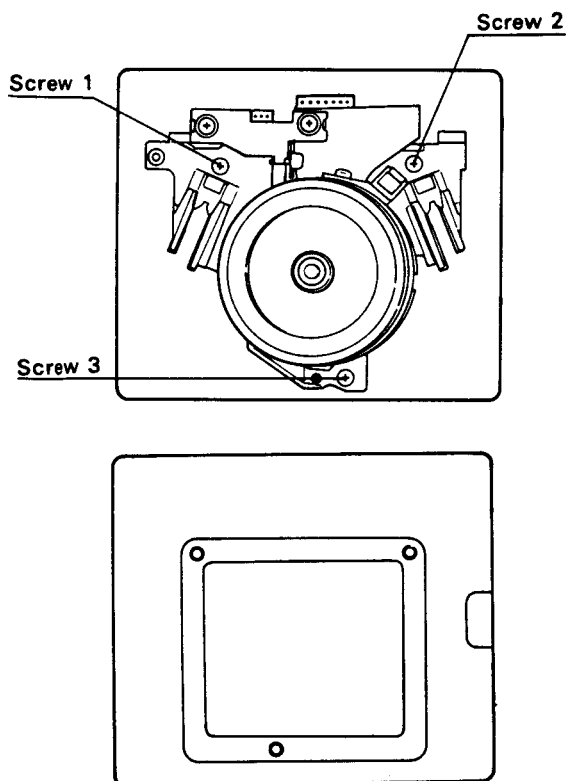


Fig. 1-7-2

1-8. REPLACEMENT OF GROUND PLATE (Figure 1-8)

1. After first placing the unit on its side, open the bottom of the unit and remove the screw ①.
2. Use the screw ① to attach the ground plate so that its contact area is aligned with the center of the drum assembly shaft.

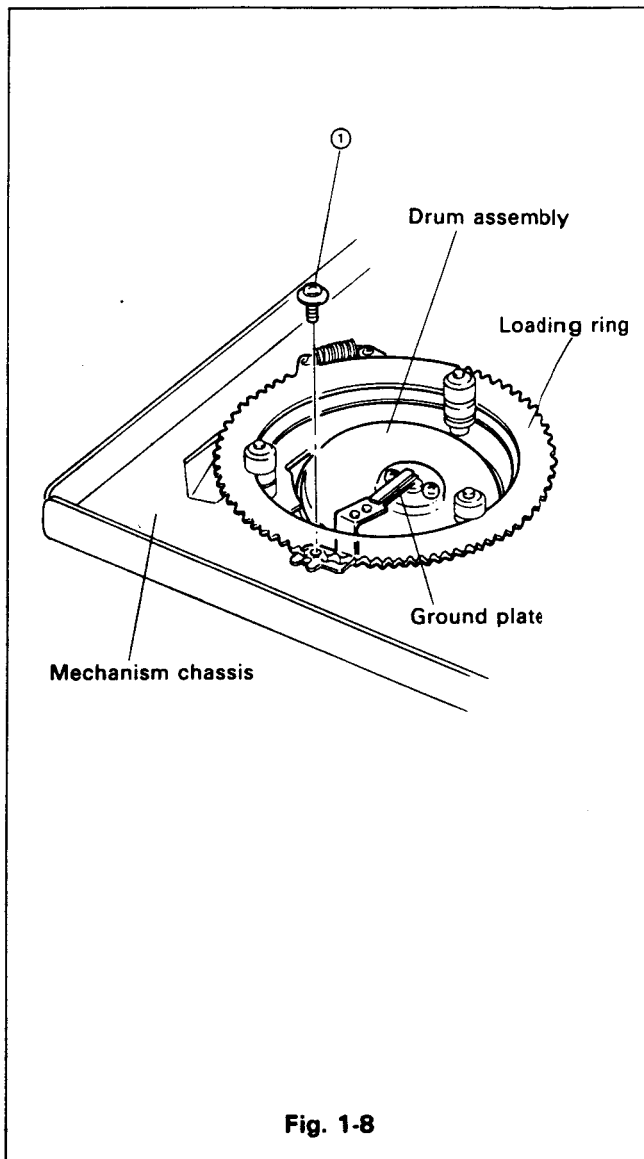


Fig. 1-8

1-9. AUDIO/CONTROL HEAD (Figure 1-9)

- (1) Remove connectors ① and ② from the ACE head circuit board. (Remove wires from clumper ① first.)
- (2) Use a box driver (J-5) to remove nylon nut ②.
- (3) Rotate the ACE head assembly clockwise, so that it is slightly away from the taper pin, then pull upwards from the head pivot. Be careful during this procedure, because the (TC) spring applies pressure to the assembly.
- (4) Replace the ACE head assembly and mount it into position by following the above procedure in reverse.
- (5) After the ACE head assembly has been replaced, adjust the height of the new ACE head assembly.
- (6) To adjust the height of the ACE Head, first place the Master Plane B Jig (J-13) on the chassis. Place the Height Gauge BM-2 Jig (J-14) on J-13 with the surface marked with an "H" facing up, and use the nylon nut box driver (J-5) to adjust to the same height as part A. Also, adjust the height of the tapered pin by following the same procedure as for the ACE Head. Use adjustment driver (J-4) to adjust to the same height as part B.

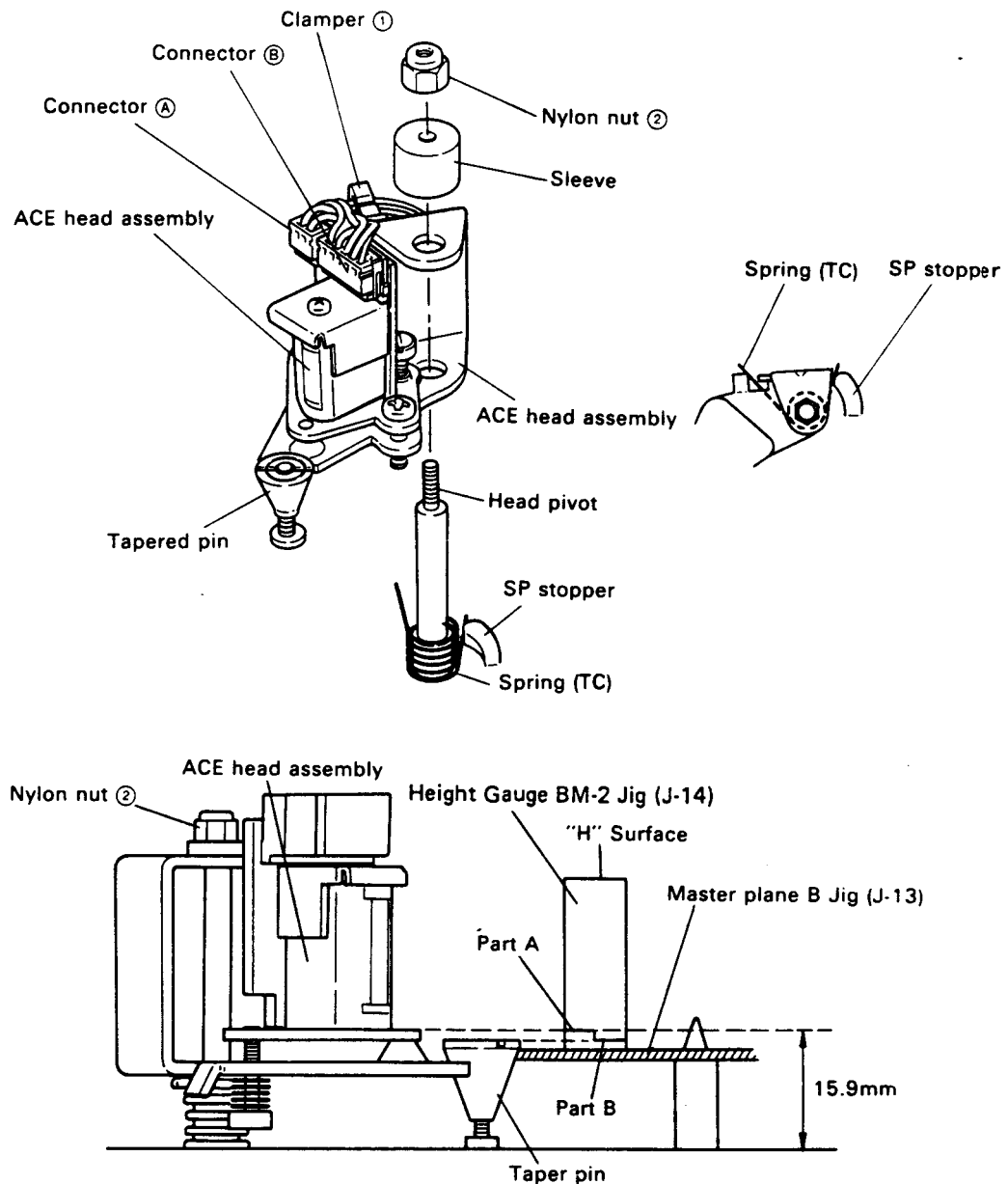


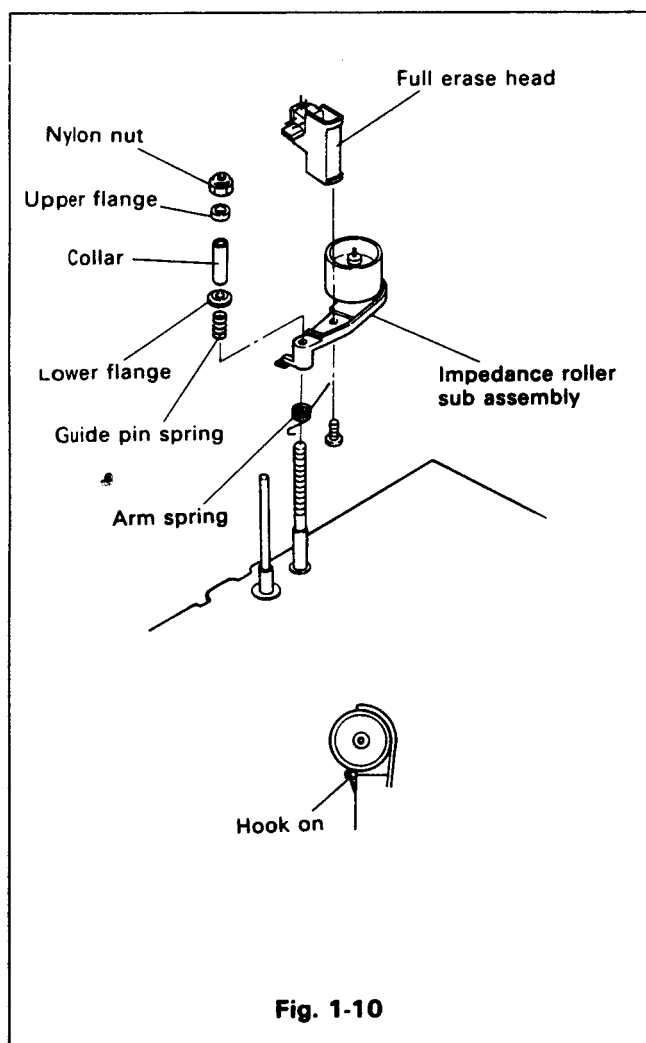
Fig. 1-9

1-10. FULL ERASE HEAD (Figure 1-10)

- (1) Remove the connector from the full erase head.
- (2) First remove the nylon nut, then remove the upper flange, collar, lower flange, guide pin spring, and arm spring.
- (3) Remove the impedance roller Sub assembly upwards.
- (4) Remove the screw that secures the full erase head from underneath the impedance roller arm. Then remove the full erase head itself.
- (5) Replace the full erase head and mount it into position, following the above procedure in reverse.

1-11. IMPEDANCE ROLLER SUB ASSEMBLY (Figure 1-10)

- (1) Remove the nylon nut, the upper flange, collar, lower flange, guide pin spring, and arm spring.
- (2) Remove the impedance roller Sub assembly upwards.
- (3) Replace the impedance roller Sub assembly and mount it into position by following the above procedure in reverse.

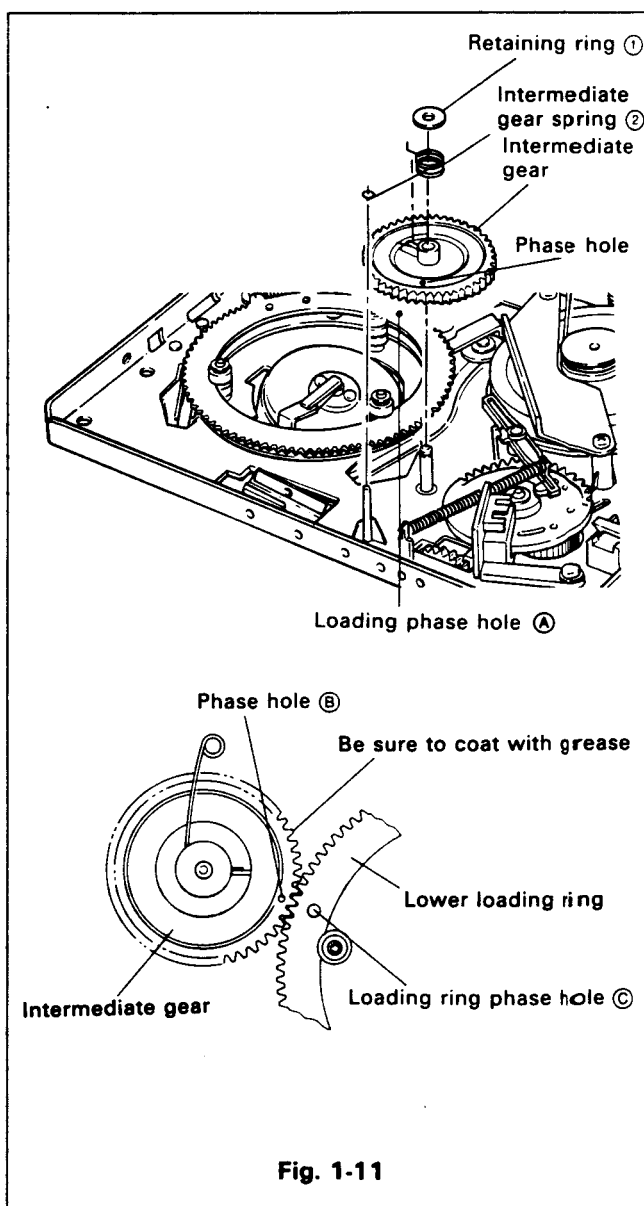


1-12. INTERMEDIATE GEAR (Figure 1-11)

- (1) Remove the retaining ring ①. Then remove intermediate gear spring ②.
- (2) Remove the intermediate gear upwards.
- (3) Replace intermediate gear and mount it into position by following the above procedure in reverse.

Notes:

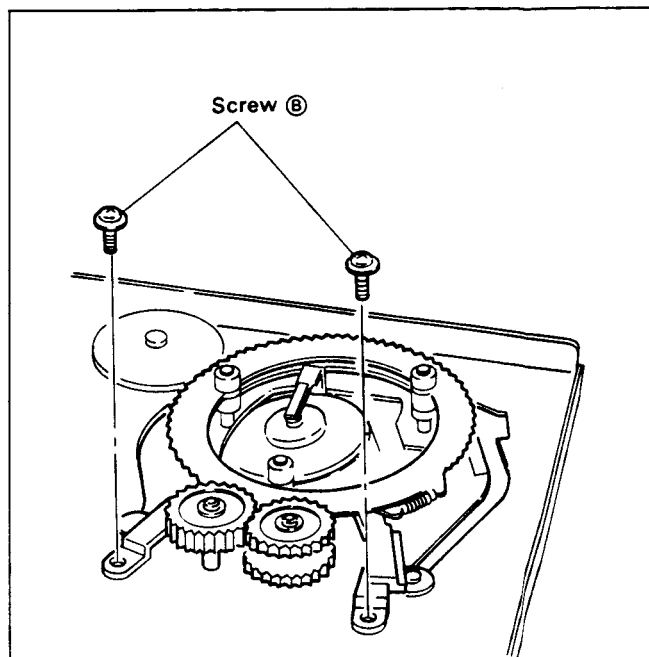
1. As shown in Fig. 1-11, when loading phase holes ① of the upper and lower loading rings are aligned, attach intermediate gear so that the phase hole ② of intermediate gear and phase hole ③ of the loading ring are facing each other, as shown in Fig. 1-11.
2. Be sure that intermediate gear spring ② is firmly secured to the lock of the intermediate gear.



1-13. S SLANT BASE/TU SLANT BASE SUB ASSEMBLY (Figure 1-12)

- (1) Remove the preamp circuit board assembly (Refer to Item 3-3 of Section 2.)
- (2) Remove connector ① of the drum assembly and drum heater ②. (Press the shaded area down with your fingers when replacing connector ① so as not to damage the printed circuit board. When attaching connector ①, be sure to support underneath the circuit board with your fingers.)
- (3) Remove the three screws ① of the drum assembly, then remove the drum assembly upwards. (Be sure not to damage the head tips during this procedure).
- (4) Remove the two screws ②, from the reverse side of the chassis.
- (5) Slide and remove the S slant base Sub assembly from the chassis.
- (6) Replace the S slant base Sub assembly and mount it into position by following the above procedure in reverse.

Note: The procedure for replacing the TU slant base Sub assembly is the same as that for removing the S slant base Sub assembly.



Reverse Side of Chassis

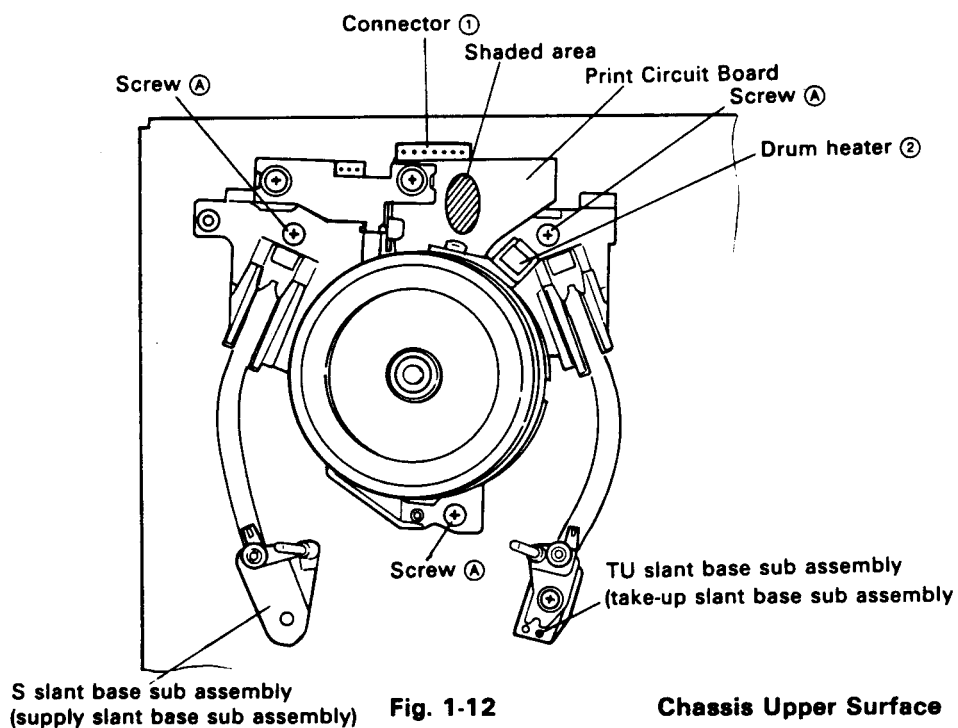


Fig. 1-12

Chassis Upper Surface

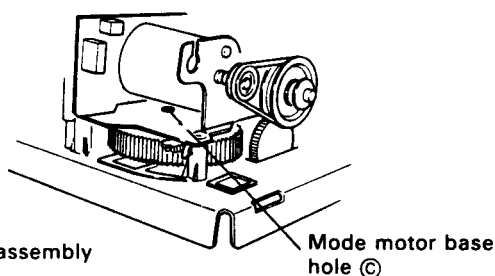
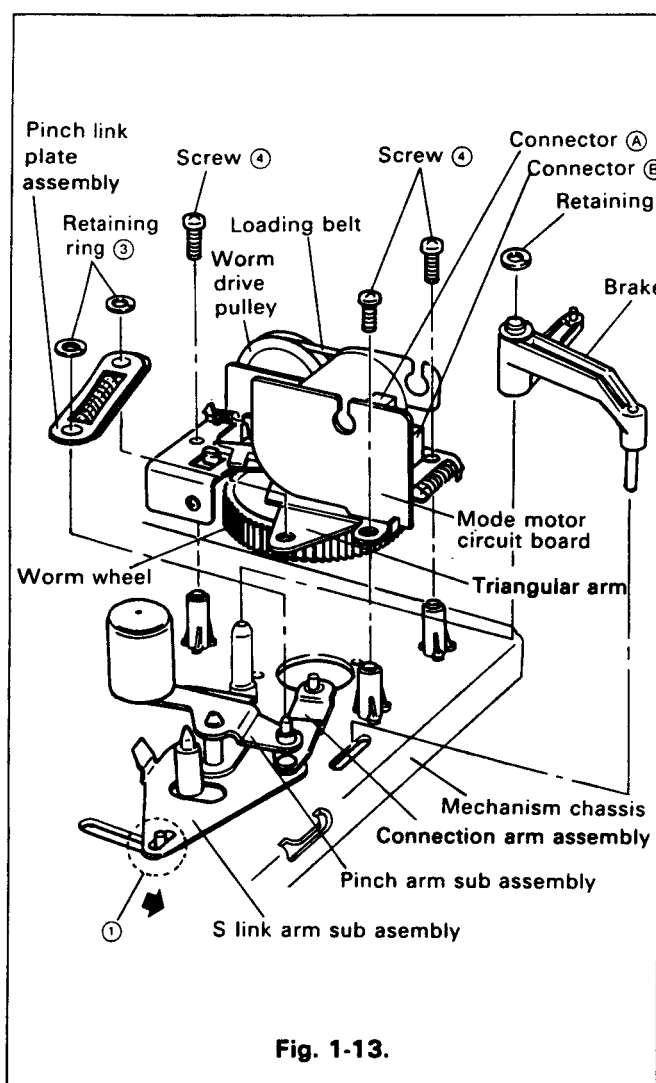
1-14. ENTIRE MODE CAM ASSEMBLY (Figure 1-13, 1-14)

- (1) Remove the loading belt of the entire mode cam assembly. Rotate the worm drive pulley by hand so that the ① part of the S link arm assembly comes as far to the right as possible as shown in Fig. 1-13. (This position is the same as for the FF or the REW mode.) Remove connectors ① and ② of the mode motor circuit board. Next, remove the wires going through the groove of the circuit board. (During this procedure, be sure to remove the connectors of the ACE head first.)
- (3) Remove retaining ring ②, and then remove the brake link arm assembly.
- (4) Remove retaining rings ③, then remove the pinch link plate assembly.

- (5) Remove three screws ④, then remove the entire mode cam assembly upwards.
- (6) Replace the entire mode cam assembly and mount it into position by following the above procedure in reverse.

Notes:

1. When attaching the mode motor assembly on the chassis, first align the mode motor worm wheel hole ① with the mode motor base hole ② by rotating the worm drive pulley.
2. Attach the mode motor assembly so that the ① part of the S link arm assembly comes as far to the right as possible. At this time, be sure to confirm that the hole ③ on the chassis, and holes ④ and ⑤ described above are in alignment.



1-15. CAPSTAN MOTOR (Figure 1-15)

- (1) Remove retaining ring ①, and then remove the brake link arm assembly.
- (2) Remove retaining rings ② and ③, then remove the pinch arm sub assembly upwards.
- (3) Working from the reverse side of the chassis, remove screws A and B, then remove the supporting plate.
- (4) Remove the drive belt, then remove the connector from the capstan motor circuit board. Remove screws C, D and E.
- (5) Remove the capstan motor.
- (6) Replace the capstan motor and mount it into position by following the above procedure in reverse. During this operation, care should be taken not to damage or magnetize the capstan shaft.

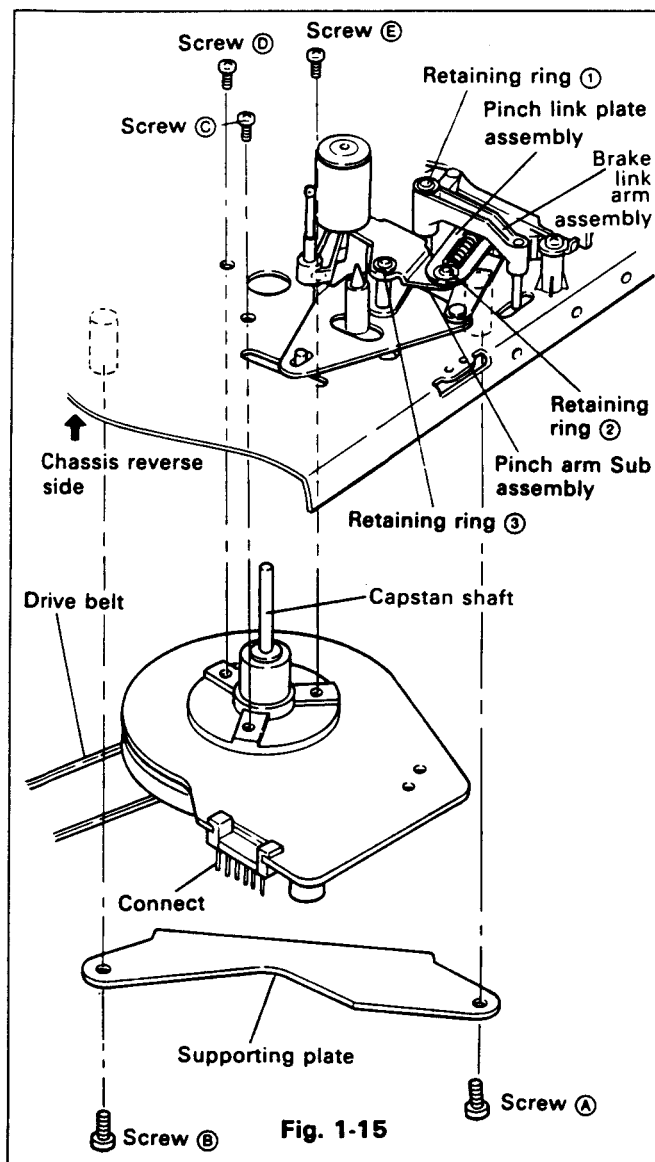


Fig. 1-15

1-16. PINCH ARM SUB ASSEMBLY (Figure 1-16)

- (1) Remove retaining ring ①, and then remove the brake link arm.
- (2) Remove retaining rings ②, then remove pinch link plate assembly ③.
- (3) Remove retaining ring ④ and then remove the pinch arm Sub assembly upwards.
- (4) Replace the pinch arm Sub assembly and assemble it into position by following the above procedure in reverse.

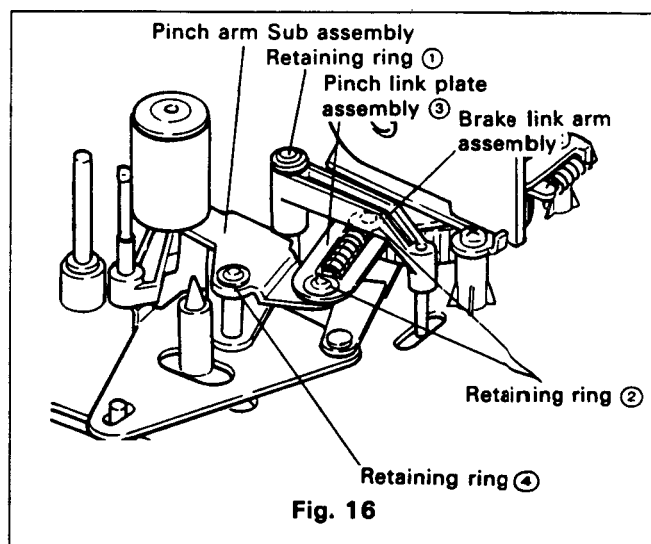
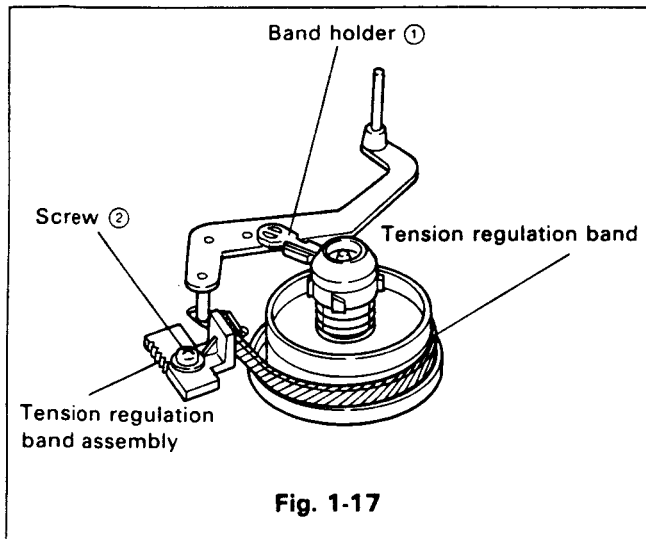


Fig. 16

1-17. TENSION REGULATION BAND ASSEMBLY (Figure 1-17)

- (1) Remove band holder ① of the tension regulation arm assembly from the tension regulation arm assembly. Next, remove screw ② and remove the tension regulation band assembly. (Fig. 1-17)
- (2) Exchange the tension regulation band assembly with a new replacement and mount it into position by following the above procedure in reverse.
- (3) Adjust the tension regulation arm assembly according to the following procedure.

CAUTION: Excessive pressure on the lever during band holder replacement could bend it out of shape.

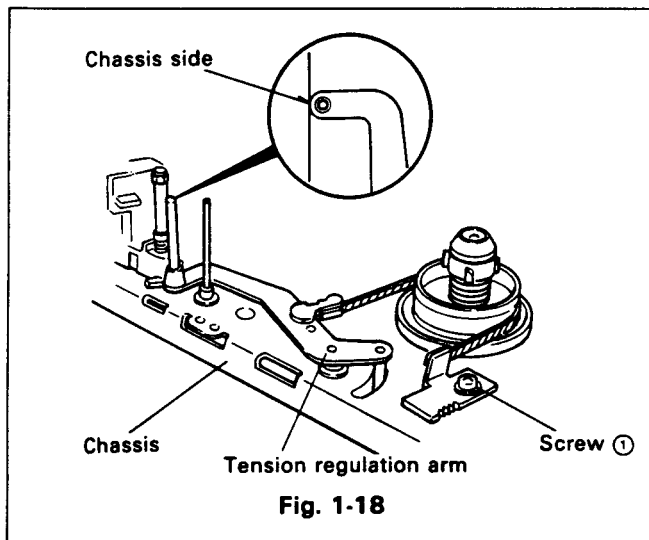


1-18. ADJUSTING THE TENSION REGULATION ARM POSITION (Figure 1-18)

- (1) With the cassette housing removed, activate the play mode.
- (2) Adjust screw ① so that the left end of the tension regulation arm comes in alignment with the chassis side, secure it firmly as shown in Fig. 1-18.

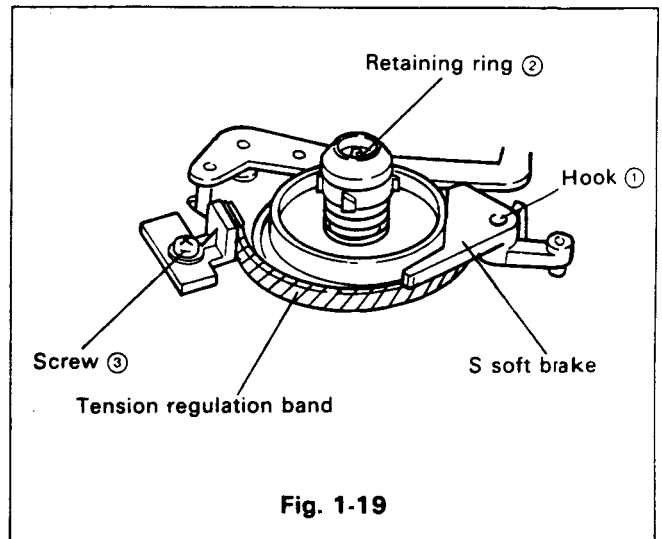
Note:

If back tension is incorrect, check the tension pole position. Use the back tension cassette gauge and confirm a value of between 17 and 32 gcm. If necessary, replace the tension arm spring or tension band and readjust the tension pole position.



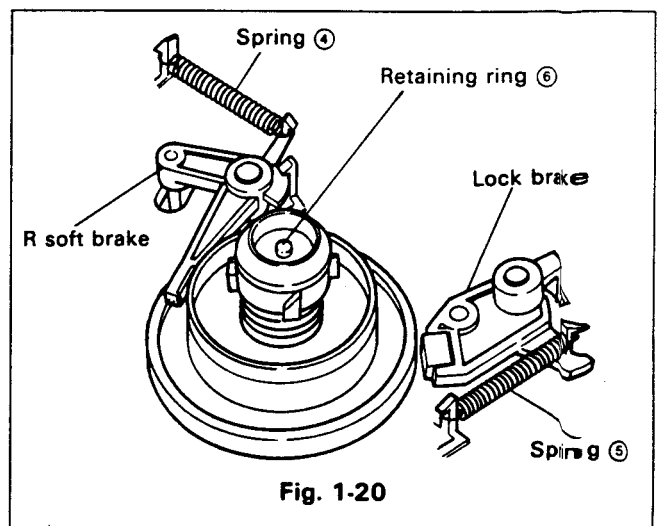
1-19. SUPPLY REEL DISK (Figure 1-19)

- (1) Release the S soft brake upwards from hook ①.
- (2) Remove the retaining ring from the reverse side of the tension regulation arm, then remove screw ③ and tension regulation band.
- (3) Remove retaining ring ②, then remove the supply reel disk.
- (4) Replace the reel disk and mount it into position by following the above procedure in reverse.



1-20. TAKE-UP REEL DISK (Figure 1-20)

- (1) Remove spring ④, then remove the R soft brake upwards.
- (2) Remove spring ⑤, then remove the lock brake upwards.
- (3) Remove retaining ring ⑥, then remove the take-up reel disk.
- (4) Replace the reel disk and mount it into position, by following the above procedure in reverse.



1-21. ADJUSTMENTS WHEN REPLACING THE SUPPLY AND TAKE-UP REELS (FIGURE 1-21)

Height adjustment of reel disk (height confirmation of supply and take-up reel disks)

Set the Master Plane B Jig (J-13) on the chassis. (Fig. 1-21-1)

Next, place the Height Gauge BM-2 Jig (J-14) in the positions indicated by the two arrows in Fig. 1-21-1. Slide as shown in Fig. 1-21-2, and verify that the upper surface of the reel disk slides over the A surface of the Height Gauge BM-2 Jig (J-14) and not over the B surface of the Height Gauge BM-2 Jig (J-14).

Note: When checking the height of the supply reel disk, place the Master Plane B Jig (J-13) so that the "S" mark of the Height Gauge BM-2 Jig (J-14) faces upwards.

When checking the height of the take-up reel disk, place the Master Plane B Jig (J-13) so that the "TU, R" mark of the Height Gauge BM-2 Jig (J-14) faces upwards.

If reel disk is outside this range, use polyester washers to make the required adjustments (Fig. 1-21-3).

Part numbers of polyester washers for adjustment

16628731 thickness 0.5 mm

16288001 thickness 0.13 mm

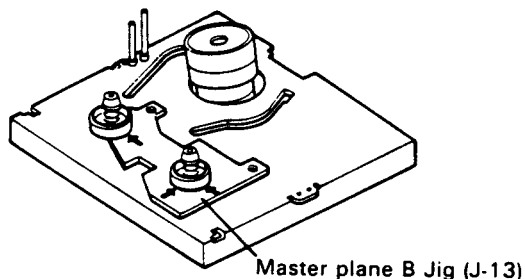


Fig. 1-21-1

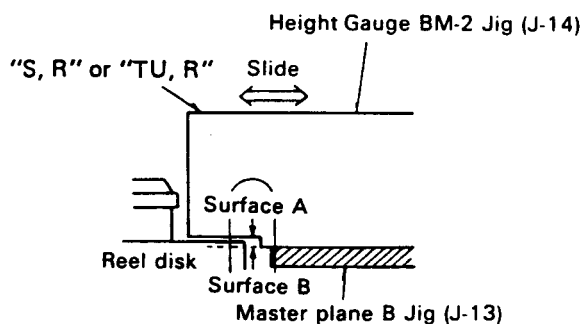


Fig. 1-21-2

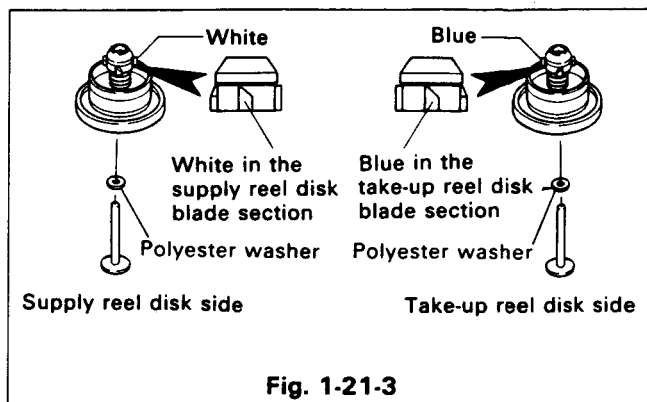


Fig. 1-21-3

1-22. TENSION REGULATION ARM ASSEMBLY (Figure 1-22)

- (1) Remove screw ①, then remove the tension regulation band assembly from the tension regulation arm assembly.
- (2) Remove retaining ring ② from the reverse side of the chassis.
- (3) Remove the tension regulation arm assembly upwards.
- (4) Replace the tension regulation arm assembly and mount it into position by following the above procedure in reverse.

Notes:

1. When installing the tension regulation arm assembly into place, pin A should fall into position C as shown in Fig. 1-22.
2. Adjust the position of the tension regulation arm by referring to Item 1-18.

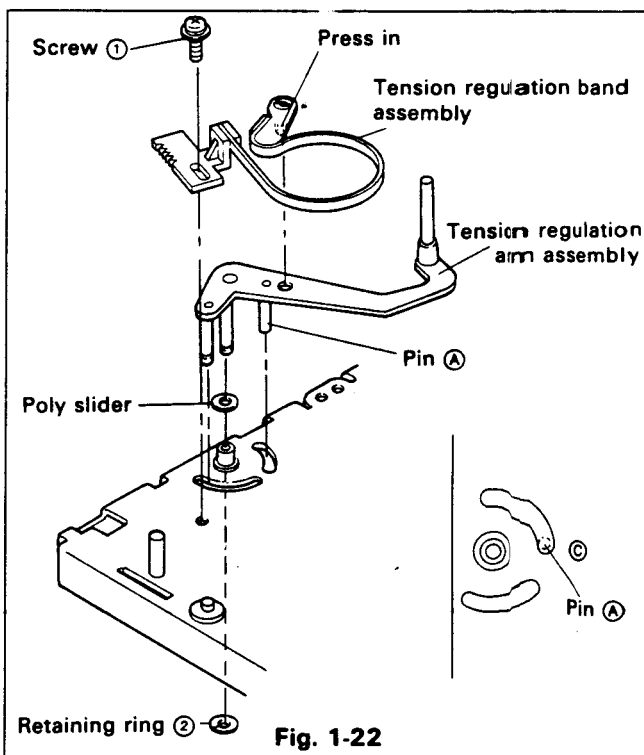


Fig. 1-22

1-23. MEASURING AND CHECKING THE FWD REEL TORQUE (Figure 1-23)

- (1) Remove the cassette housing and short TP101 and TP102 of the S/S/A/V circuit board with a clip. (Refer to Fig. 1-5.)
- (2) Activate the FWD mode.
- (3) Set the torque gauge on the take-up reel disk base and measure the torque.
- (4) FWD torque rating: $90 \text{ gcm} \pm 15 \text{ gcm}$.
- (5) FF, REW torque rating: more than 400 gcm.
- (6) REV torque rating: $170 \text{ gcm} \pm 25 \text{ gcm}$.

1-24. MEASURING AND CHECKING THE BRAKING TORQUE (Figures 1-23, 1-24, 1-25)

Be sure to carry out the following measurements after the brake arm (R),(L) has been replaced.

- (1) Remove the cassette housing.
- (2) Keep the VCR in the FF mode and unplug the AC cord.
- (3) Press the lock arm of the mode cam assembly in the direction of the arrow.

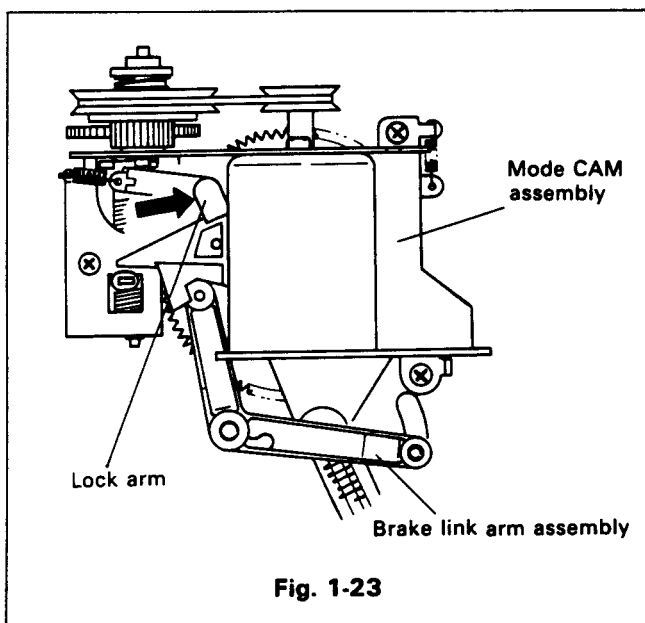


Fig. 1-23

- (4) Before measuring the torque of the brake arm (L), lightly push the S soft brake in the direction indicated by the arrow, then release the tension regulation band from the reel disk.
- (5) Place a torque meter on the S reel disk. Grasping the torque meter lightly, turn it clockwise, and read out the value when the meter face plate begins to move along together with the meter needle. Check that this value falls between 250 ~ 500 gcm.

- (6) Using the same procedure as above, lightly grasp the torque meter, turn the gauge counterclockwise, and read out the value when the meter face plate begins to move along with the meter needle. Check that this value falls between 50 ~ 180 gcm.

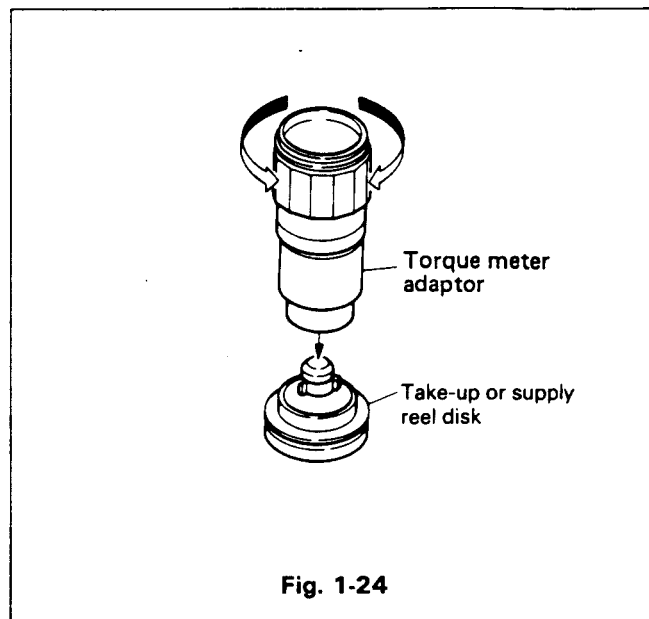


Fig. 1-24

Notes:

1. When measuring the brake arm (R) torque, lightly push the TU soft brake so that it releases from the reel disk, following the same procedure as when measuring the torque of the brake arm (L).
2. If the measured value deviates excessively from the appropriate values, carefully check the springs, etc.

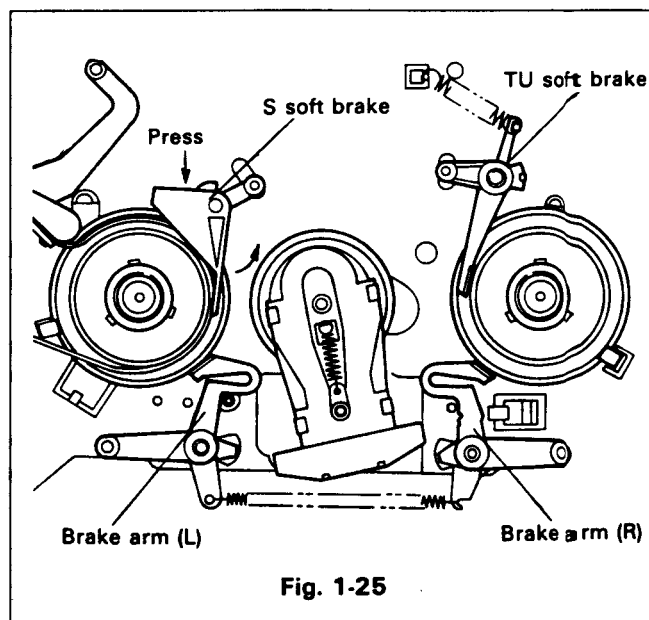


Fig. 1-25

2. CHECKING AND ADJUSTING THE TAPE PATH

Because the tape transport system is precision-adjusted at the factory prior to product shipment, there is usually no need to readjust the system. Note, however, that after

extensive use or when any tape transport system parts have been replaced, it becomes necessary to check and adjust the tape path and tape transport system.

2-1. TAPE PATH MECHANISM (Figure 2-1)

The VHS-system tape path is characterized by upper drum rotation with the video head to wind the tape around the drum in an M-shaped form.

To wind the tape accurately around the tilted drum, the tape is guided by a slanted guide posts (thrust poles) mounted to the left and right of the drum. The tape level during operation is determined by the pair of guide rollers.

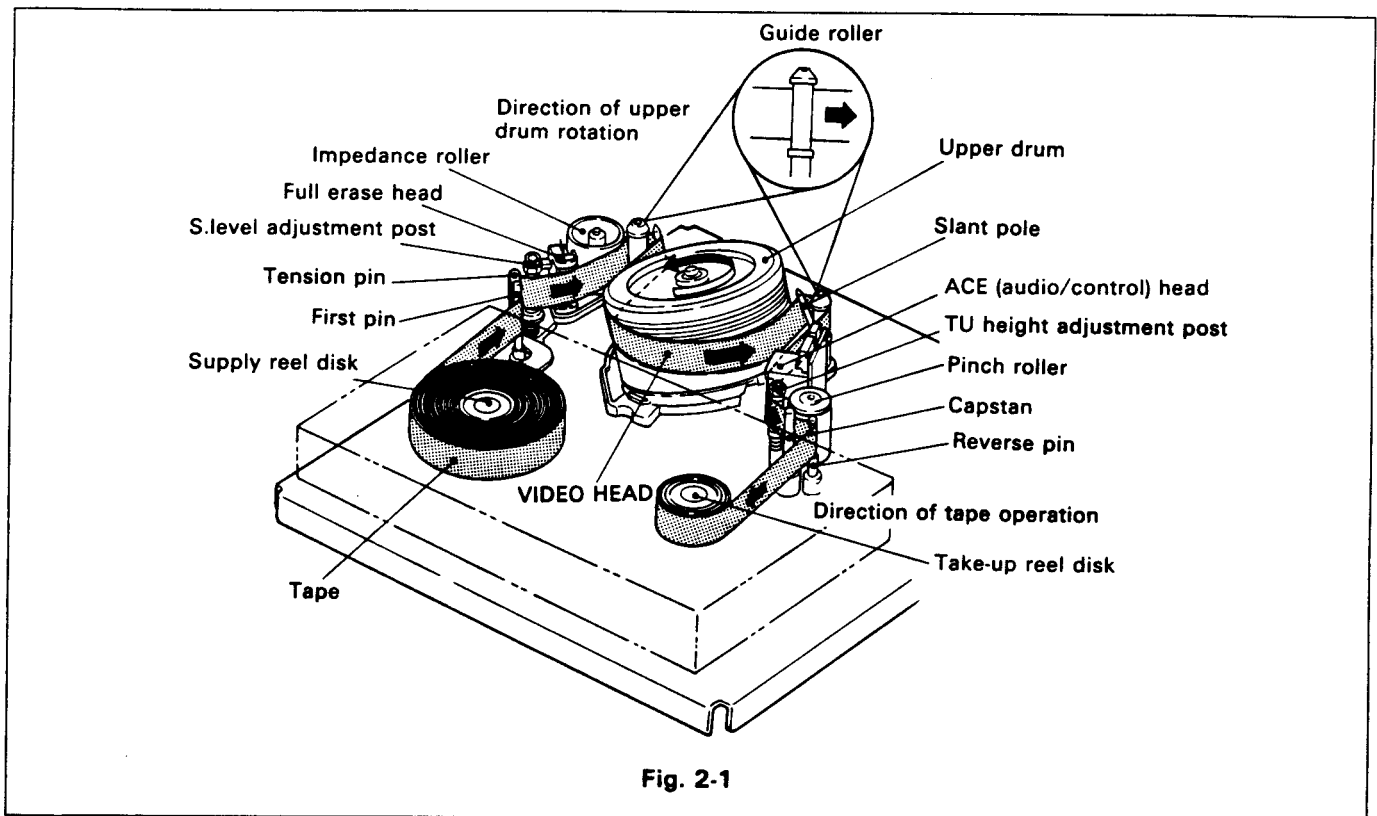


Fig. 2-1

The tape is always wound around the cassette through the first pin, tension pin, and S.level adjustment post via the path indicated by the arrows in Fig. 2-1.

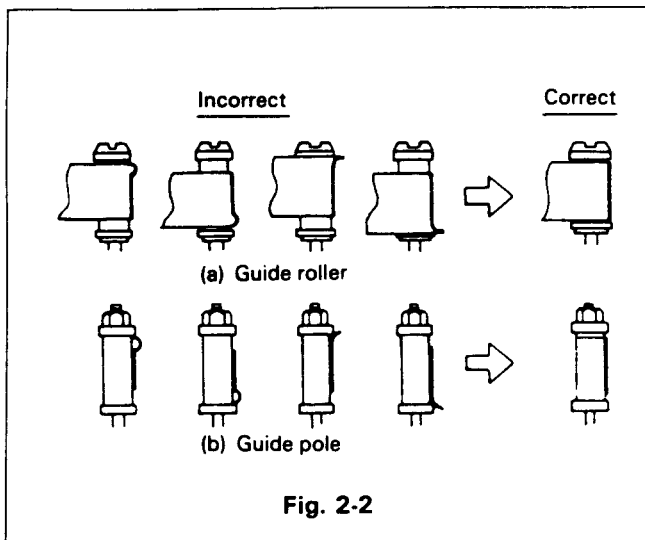
In addition, the impedance roller absorbs minor vibration in the direction of tape operation to eliminate picture jitter and voice wow and flutter.

The reverse pin controls the level of the tape fed from the take-up reel side before it reaches the capstan (pinch roller) when the tape is reversed in the REV mode.

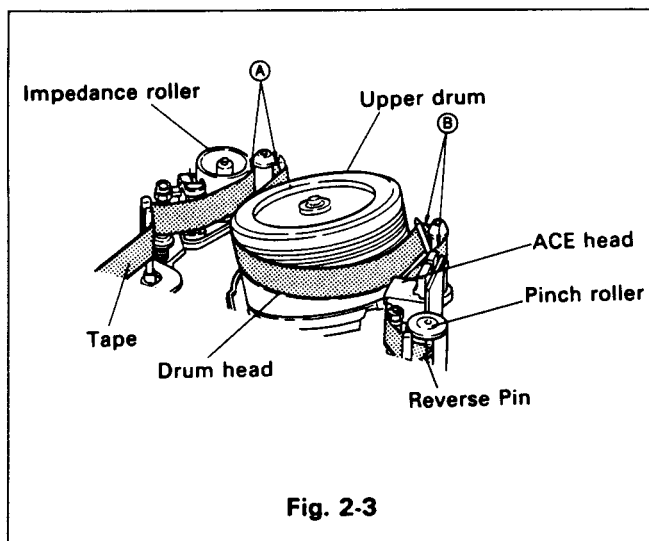
2-2. CHECKING THE TAPE TRANSPORT SYSTEM (Figures 2-2, 2-3)

- (1) Use a E-120 cassette tape.
- (2) Use a cleaning cloth soaked in cleaning solution (isopropyl alcohol) to clean the tape transport system parts (tape guide, tape contact surface of drum, capstan shaft, pinch roller, surface of ACE and FE heads, etc.).
- (3) Use a cassette tape to check the following points.
- (4) Operate the PLAY and STOP modes a few times to ensure proper operation.

- (5) In the PLAY, CUE, and REV modes, observe whether the tape is being wrinkled or not on the supply guide roller, supply guide pole, take-up guide roller, take-up guide pole and reverse pin. If the tape is being wrinkled, make the necessary adjustments by referring to figure 2-2 and performing the adjustments described in Item 2-3.



- (6) In the PLAY, CUE and REV modes, confirm that tape undulation does not occur at sections (A) and (B) shown in Fig. 2-3. To check section (A), remove the impedance roller from the tape.
- (7) Repeat the REV and CUE modes a few times alternately to check that the tape does not move up and lower at the lower area of the ACE head.



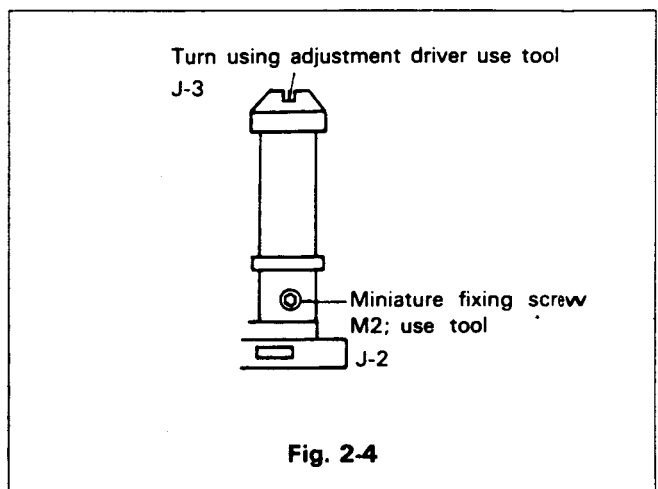
2-3. ADJUSTING THE TAPE TRANSPORT SYSTEM (Figures 2-4, 2-5, 2-6)

Only make these adjustments if a malfunction has been detected during the checking described in Item 2-2.

Note: Be sure to carry out intercompatibility adjustments after the tape transport system has been adjusted, be sure to make the intercompatibility adjustments to ensure compatibility among parts.

2-3-1 Adjusting the guide roller height (vertical pole height adjustment)

- (1) As shown in Fig. 2-4, loosen the fixing screws of the supply guide roller and take-up guide roller (until the guide rollers can be turned easily by using the adjustment screwdriver).



- (2) Insert a cassette tape, and activate the PLAY mode.
- (3) Rotate the supply guide roller with the adjustment screwdriver (J-3) to tighten tape tension at the upper and lower flanges.
- (4) Adjust the take-up guide roller according to the same procedure.

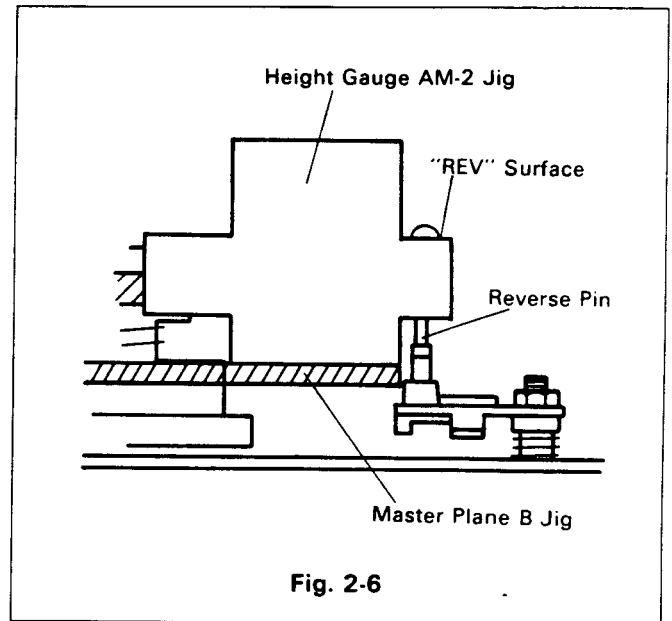
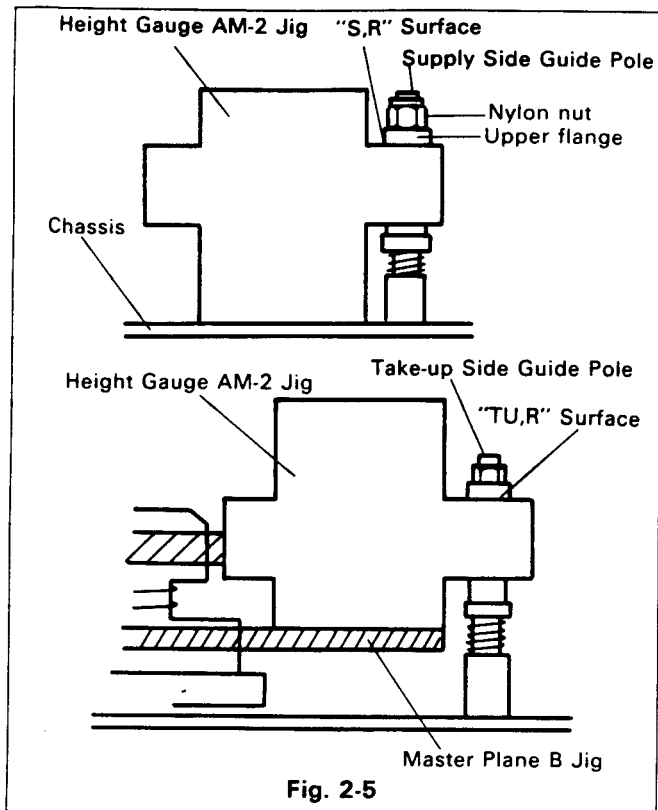
2-3-2 Adjusting the guide pole and reverse pin heights

Note: When adjusting the take-up guide pole height, be sure to remove the cap.

[A] Adjusting the guide pole and reverse pin heights

- (1) To adjust the height of supply-side guide pole, set the Height Gauge AM-2 Jig (J-12) on the chassis as shown in Fig. 2-5 and rotate the nylon nut to adjust to the height of the lower surface of the upper flange.
- (2) To adjust the height of take-up side guide pole, place the Master Plane B Jig (J-13) on the chassis, and place the Height Gauge AM-2 Jig (J-12) on J-13 with the side marked "TU, R" facing up as shown in Fig. 2-5.

Then rotate the nylon nut to adjust to the height of the lower surface of the upper flange.



- (3) To adjust the height of the reverse pin, place the Master Plane B-2 Jig (J-13) on the chassis, and place the Height Gauge AM-2 Jig (J-12) on J-13 with the side marked "REV" facing up as shown in Fig. 2-6. Then rotate the nylon nut to adjust to the height of the lower surface of the upper flange.

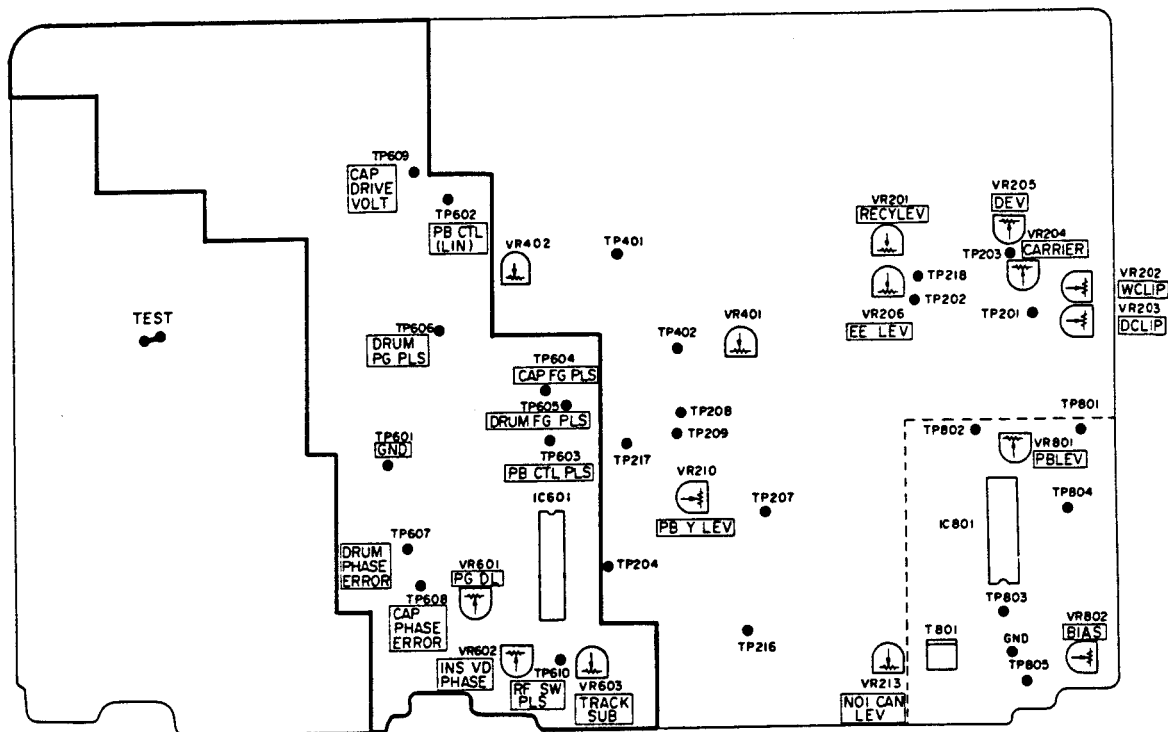
[B] Precisely adjusting the supply and take-up guide pole heights

- (1) Insert a E-120 cassette tape, and activate the PLAY mode.
- (2) As shown in Fig. 2-2, use the box driver (J-5) to precisely adjust the guide pole height and eliminate tape wrinkling on the pole.
- (3) If tape wrinkling cannot be eliminated by the above adjustment, check the supply reel disk height, tension pin, and other parts.

3. INTERCOMPATIBILITY ADJUSTMENTS (N9053G/N9055G)

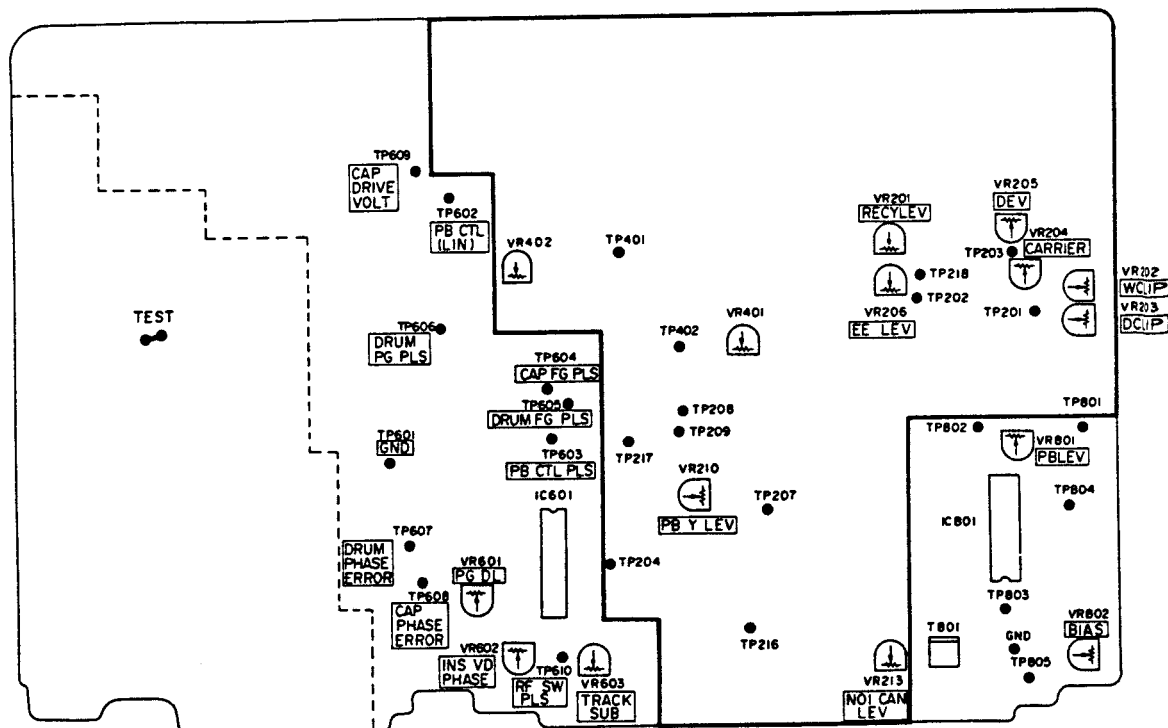
Because these adjustments have a significant effect on the picture quality in the respective modes, as well as affecting the degree of tape intercompatibility, be sure to perform the following procedures very carefully and thoroughly.

(N9053G)



SERVO

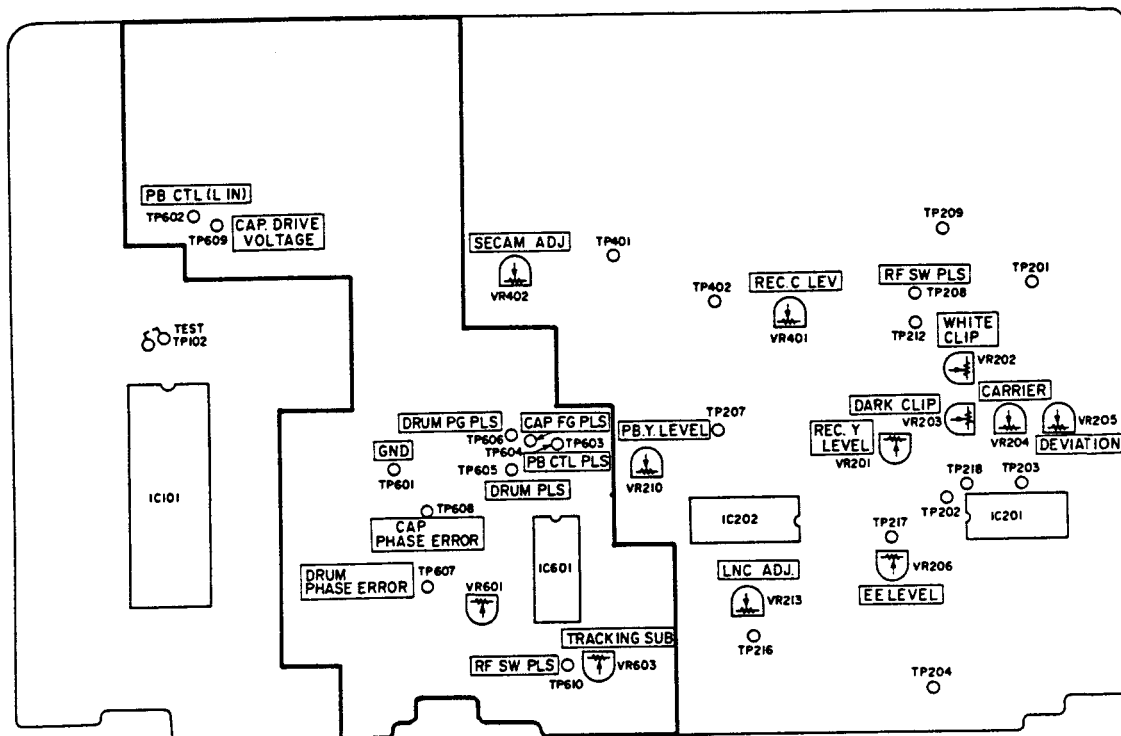
• This circuit board is viewed from component side.



VIDEO

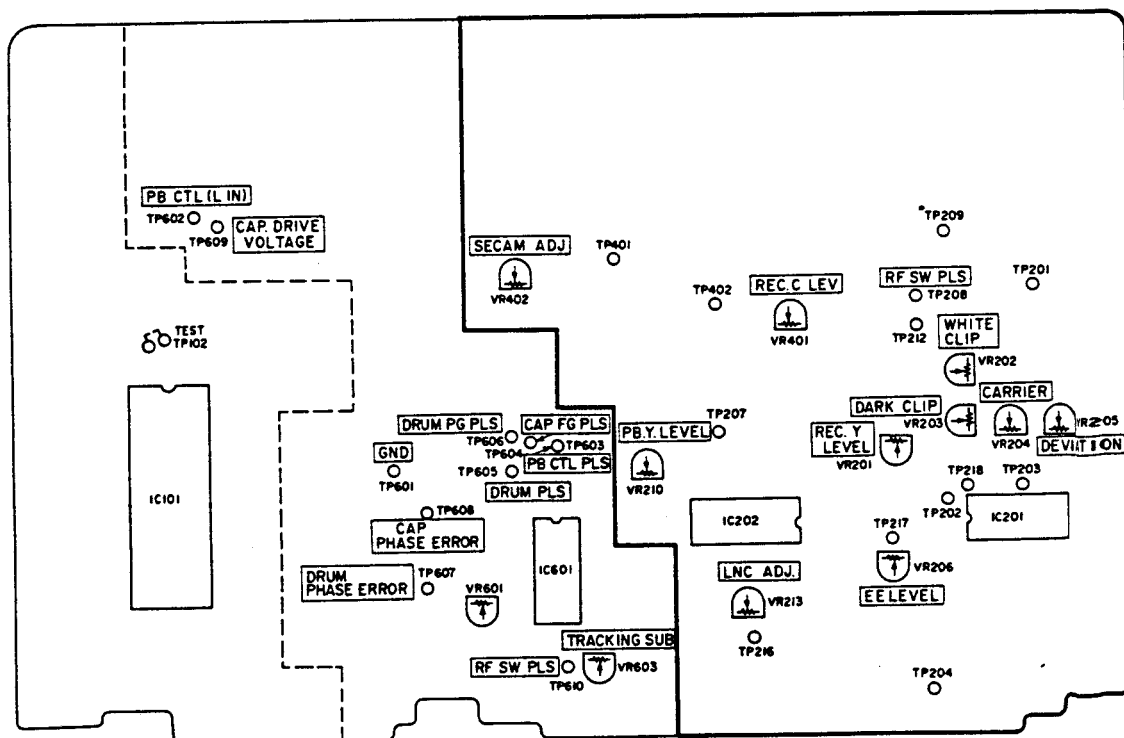
• This circuit board is viewed from component side.

(N9055G)



SERVO

• This circuit board is viewed from component side.



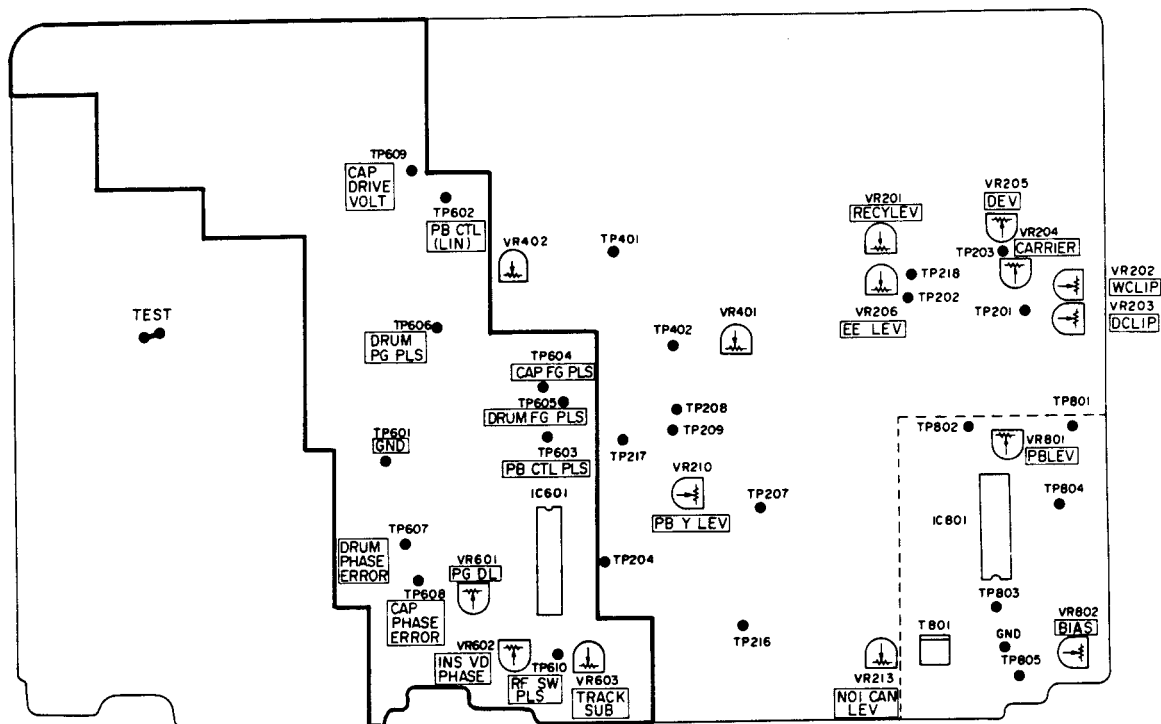
• This circuit board is viewed from component side.

VIDEO

3. INTERCOMPATIBILITY ADJUSTMENTS (N9053G/N9055G)

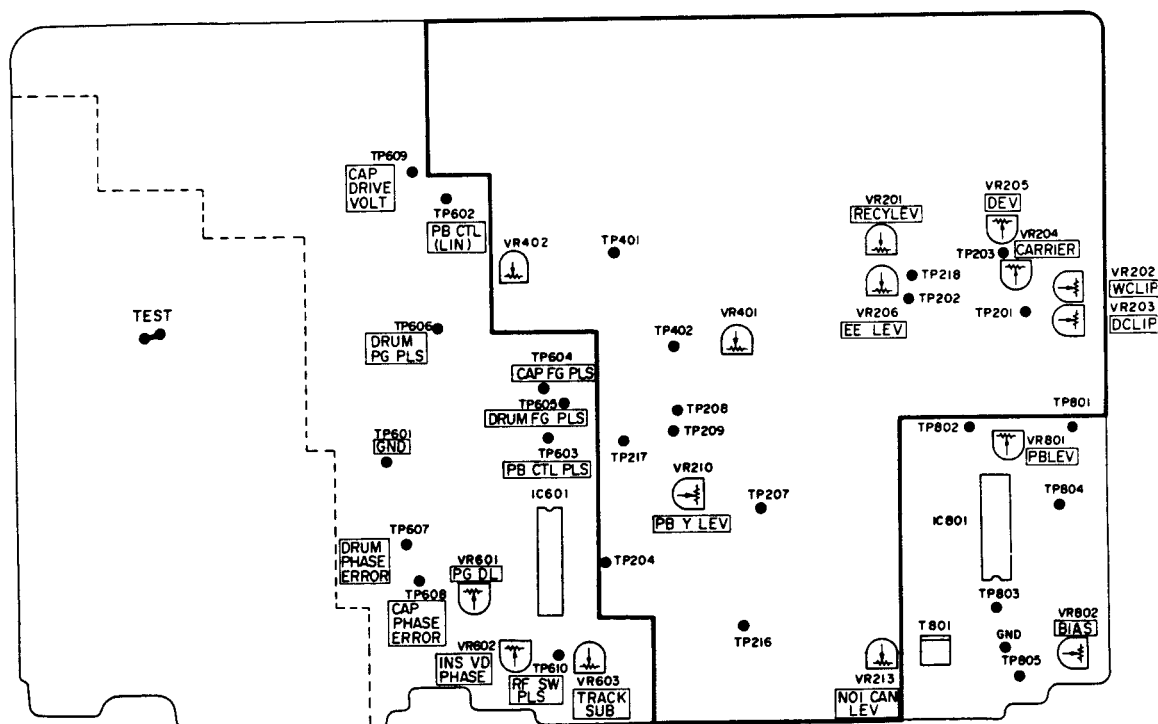
Because these adjustments have a significant effect on the picture quality in the respective modes, as well as affecting the degree of tape intercompatibility, be sure to perform the following procedures very carefully and thoroughly.

(N9053G)



SERVO

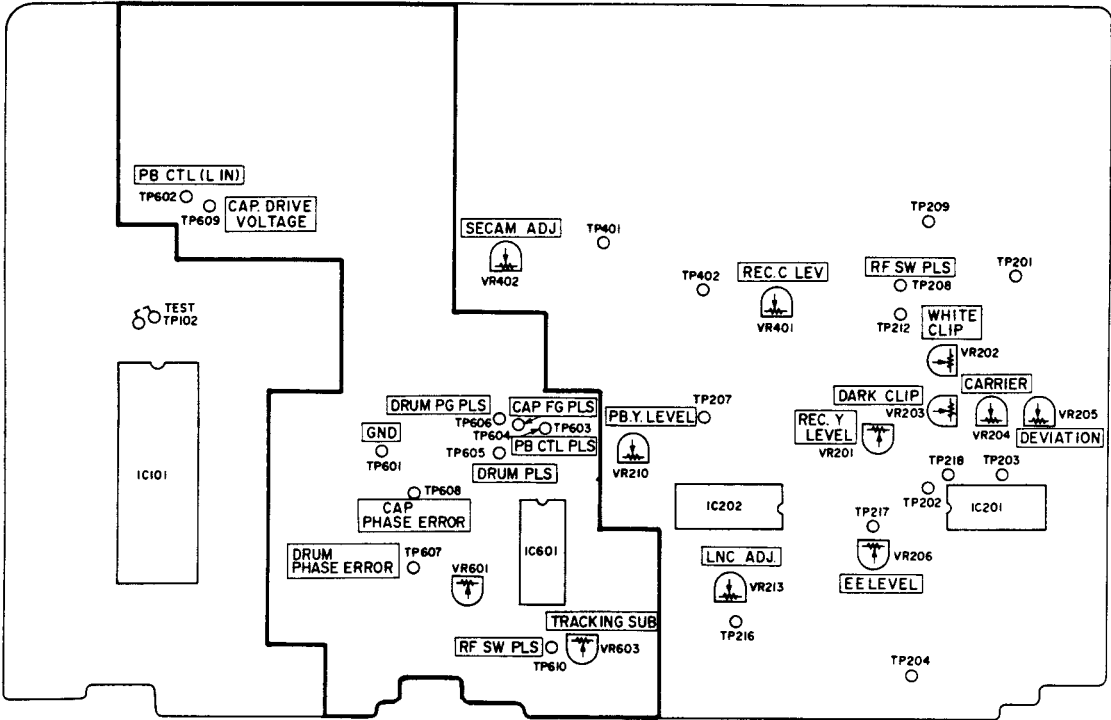
* This circuit board is viewed from component side.



VIDEO

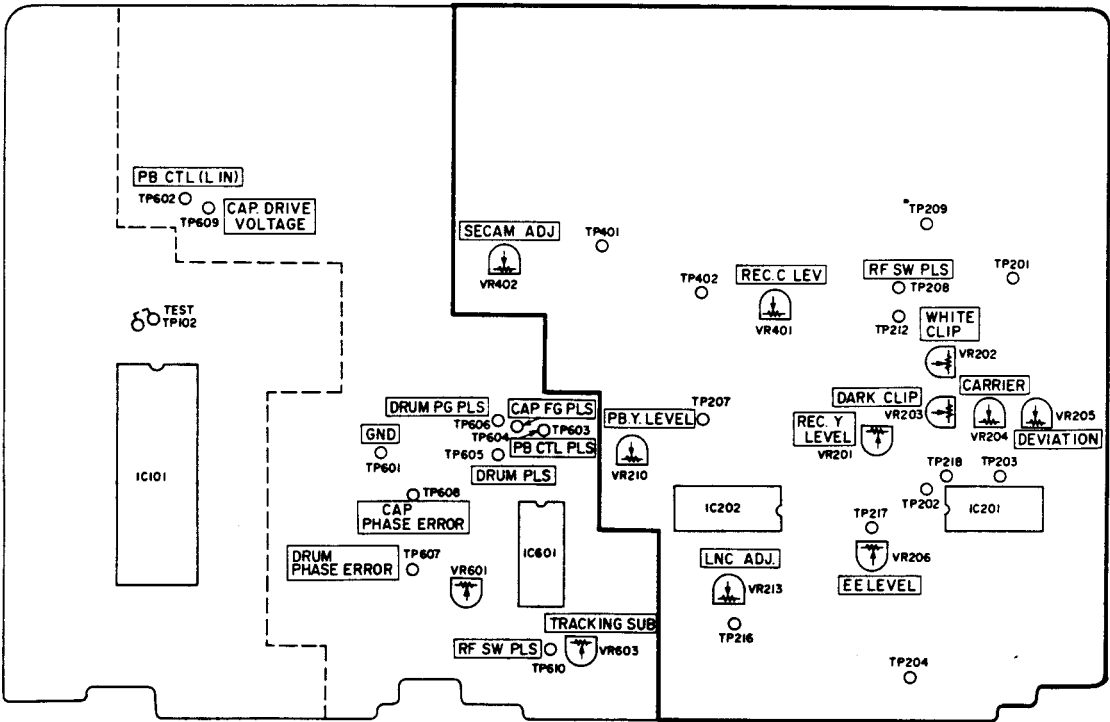
- This circuit board is viewed from component side.

(N9055G)



SERVO

• This circuit board is viewed from component side.



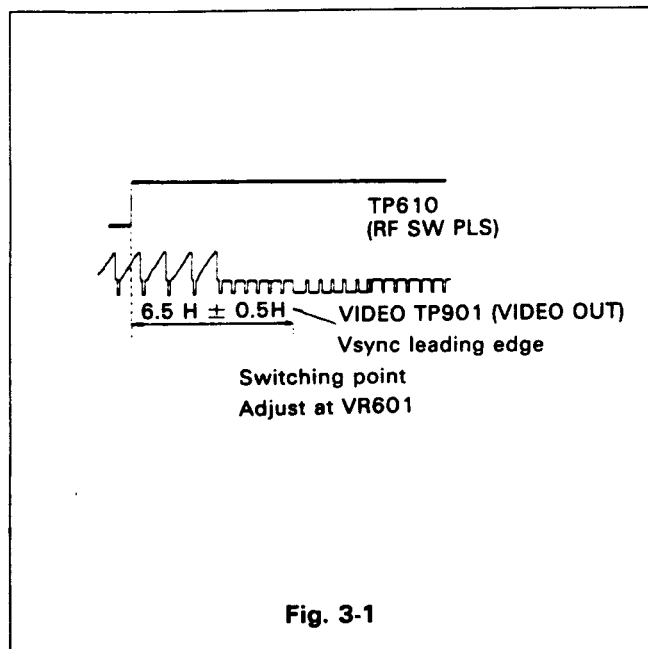
• This circuit board is viewed from component side.

VIDEO

3-1. CHECKING THE FM WAVEFORMS

3-1-1 Check 1: Checking the playback switching point

- (1) Play the alignment tape (MH-2).
- (2) Connect channel 1 of the oscilloscope to TP610 of the S/S/A/V circuit board.
Connect channel 2 of the oscilloscope to TP901 of the jack terminal circuit board.
- (3) Confirm that the interval from the RF switching pulse to the Vsync leading edge is at $6.5H \pm 0.5H$.
- (4) If not at $6.5H \pm 0.5H$, adjust VR601 on the S/S/A/V circuit board to set the interval at $6.5H \pm 0.5H$.



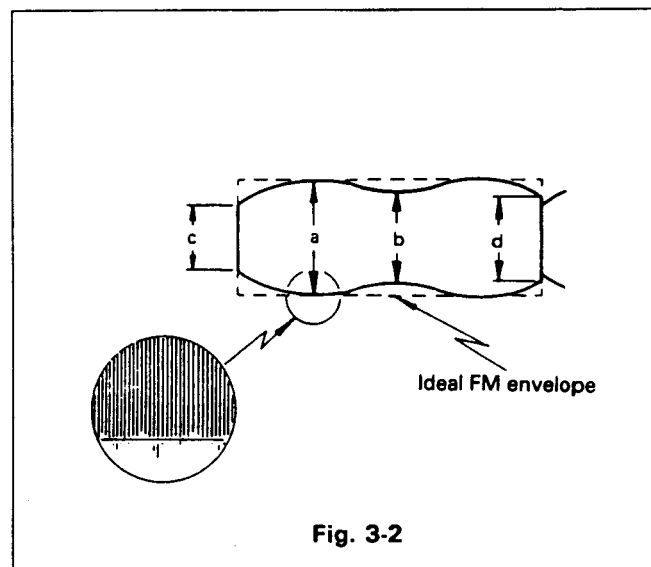
3-1-2 Check 2: Checking the FM waveform

- (1) Connect channel 1 of the oscilloscope to TP402 of the S/S/A/V circuit board. Also connect TP610 of the S/S/A/V circuit board or TP901 of the jack terminal circuit board.
- (2) Play back the MH-2 alignment tape.
- (3) Turn the tracking knob to set the FM waveform output for the maximum level.
- (4) Read the FM waveform level (a) as shown in Fig. 3-2. If the waveform is a sawtooth wave, read the level at a wave section where the sawtooth waves are relatively uniform.
- (5) Read the FM waveform level (b) as shown in Fig. 3-2, and check the following:

$$\frac{b}{a} \geq 0.8$$

- (6) Read the FM waveform levels (c) (drum entrance) and (d) (drum exit), and check the following:

$$\frac{c}{a} \geq 0.7 \quad \frac{d}{a} \geq 0.7$$

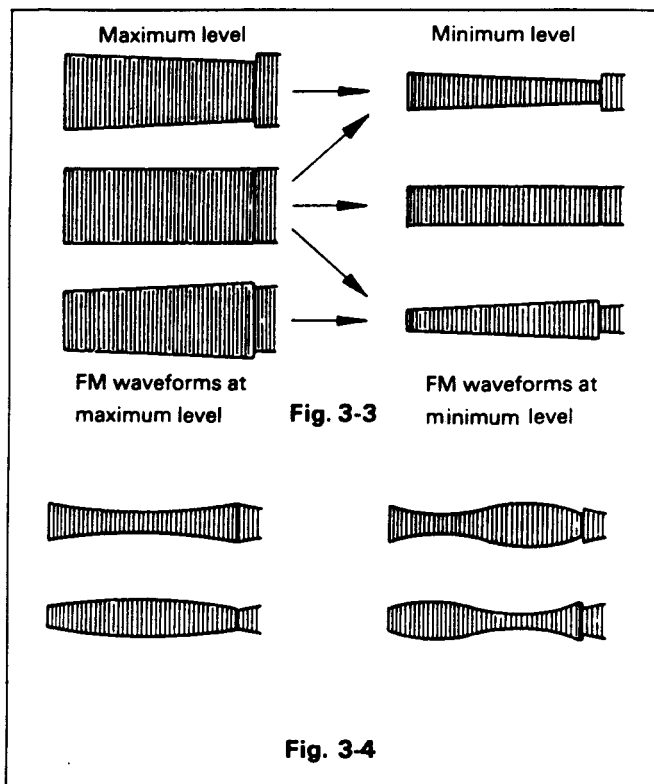


- Notes:**
1. Read the minimum levels of (b), (c), and (d).
 2. If the level values are within the above ranges, proceed to the following "Check 3-2".
 3. If any malfunction is detected, follow the coarse FM waveform adjustment procedure described in Item 3-2.

3-1-3 Check 3

- 1) As previously mentioned in Check 2 (connect the oscilloscope and play back the tape), turn the tracking knob while observing the FM waveforms. Confirm that the waveforms change linearly as shown in Fig. 3-3. When this linear change is confirmed, proceed to the ACE head height and azimuth adjustments described in Item 3-4.

- (2) When various waveforms are observed as shown in Fig. 3-4, it is necessary to make the precise adjustments described in Items 3-3.

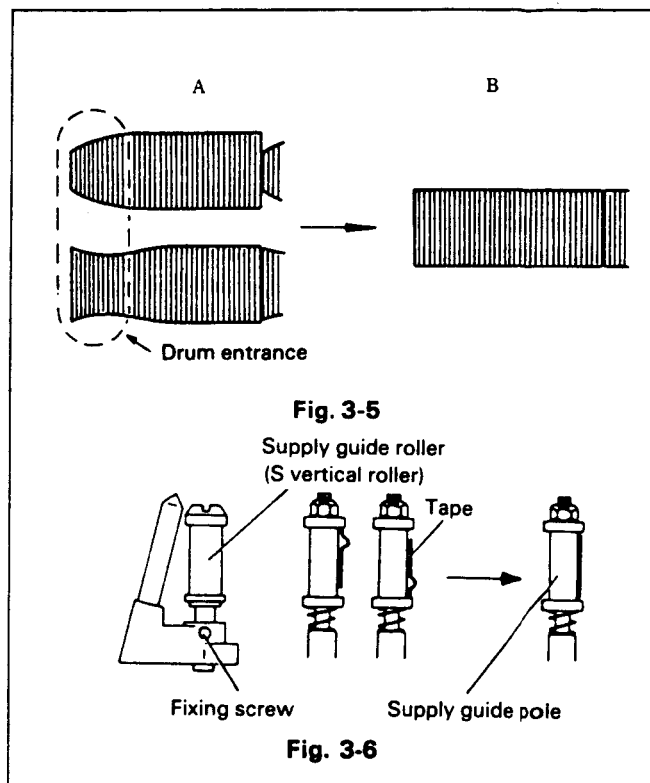


3-2. COARSE ADJUSTMENT OF FM WAVEFORMS (Preliminary adjustments)

- (1) Use the hexagonal screwdriver (J-2) to loosen the fixing screws of the supply guide and take-up guide rollers so that the guide rollers can be adjusted.
- (2) Connect channel 1 of the oscilloscope to TP402 of the S/S/A/V circuit board. Also connect TP610 of the S/S/A/V circuit board or TP901 of the jack terminal circuit board to the oscilloscope as an external synchronization terminal.
- (3) Play back the MH-2 alignment tape.

3-2-1 Drum entrance side

- (1) While observing the waveforms on the oscilloscope, turn the tracking knob to set the FM waveform for the maximum level.
- (2) If the FM waveforms look like A in Fig. 3-5, adjust the supply guide roller until the waveforms look like B in Fig. 3.5.



- Notes:**
1. Gently tighten the fixing screws so that the guide roller height adjustment screw can rotate freely. (Adjust within the proper range by using tool J-3).
 2. Make small guide roller adjustments to avoid damaging the MH-2 alignment tape.
 3. While observing the waveforms, check for any tape wrinkling at the guide poles and leading edge of the drum.

3-2-2 Drum exit

- (1) Adjust the FM waveforms by using the same procedure as used for drum entrance adjustment (by turning the take-up guide roller). If the waveforms look like C in Fig. 3-7, adjust the take-up guide roller until the waveforms look like D.

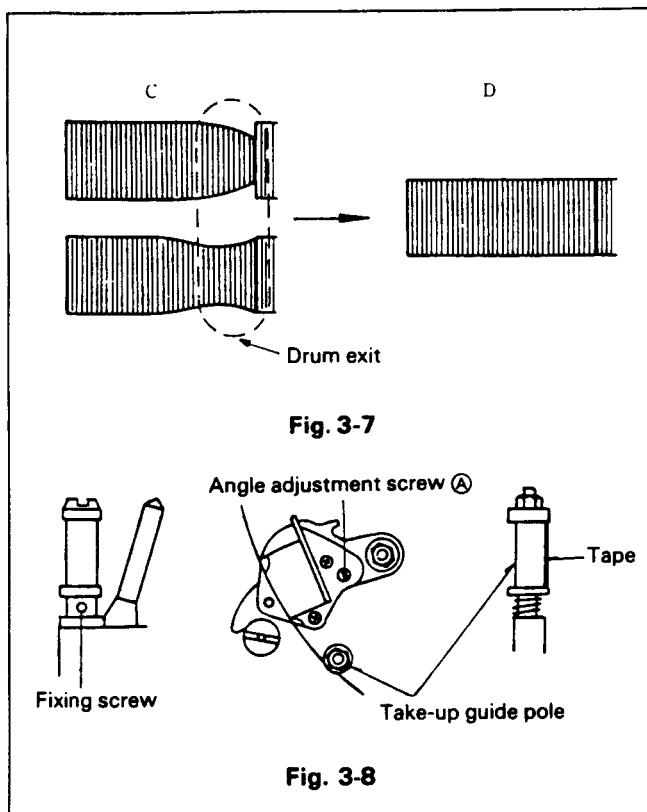
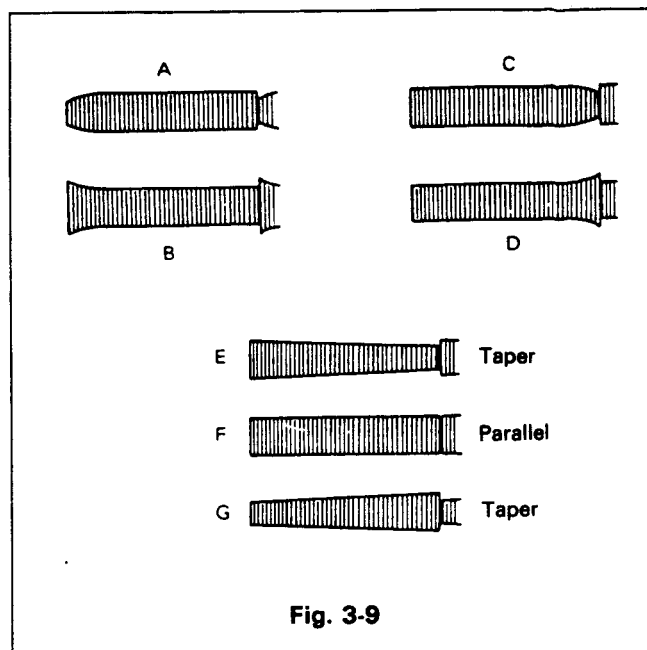


Fig. 3-7

Fig. 3-8



Note:

After completing these adjustments, confirm that the tape transport operation is functioning properly, and carefully tighten the fixing screws.

3-3. FINE ADJUSTMENT FOR INTER-COMPATIBILITY

- (1) Connect the oscilloscope to TP402 of the S/S/A/V circuit board. Also connect TP610 of the S/S/A/V circuit board or TP901 of the jack terminal circuit board to the external synchronization terminal of the oscilloscope. Playback the MH-2 alignment tape. While observing the waveforms on the oscilloscope, turn the tracking knob to set the FM waveforms for minimum levels.
- (2) If the waveforms look like A or B in Fig. 3-9, minimize the FM waveform output by carefully adjusting the supply guide roller until the waveforms look like E, F, or G in Fig. 3-9.
- (3) If the waveforms look like C or D in Fig. 3-9, minimize the FM waveform output by carefully adjusting the take-up guide roller until the waveforms look like E, F, or G in Fig. 3-9.
- (4) While turning the tracking knob to adjust the maximum and minimum levels of FM waveform output, adjust the supply and take-up guide rollers until the waveforms look like E, F, or G in Fig. 3-9.

3-4. ACE HEAD ADJUSTMENT

If the height of the audio/control head is incorrect, a poor SN ratio will result when reproducing prerecorded tapes. Refer to Fig. 3-10.

- (1) Connect channel 1 of the oscilloscope to the AUDIO OUT jack on the rear panel.
- (2) Play back the MH-2 alignment tape and reproduce the 6 KHz audio signal.
- (3) While observing the audio output signal on the oscilloscope, adjust the height adjustment nut (A) shown in Fig. 3-10 to the maximum output level.
- (4) Next, adjust the azimuth adjustment screw (B) to the maximum output level.

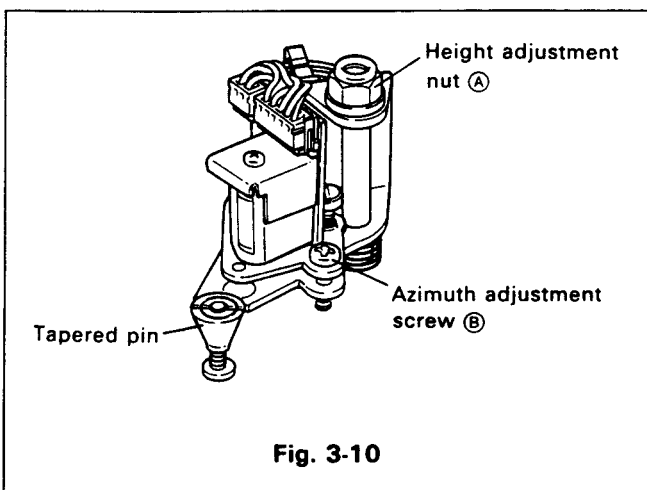


Fig. 3-10

3-5. ADJUSTING THE CTL POSITION

[A] Adjusting subtracking

- (1) Connect channel 1 of the oscilloscope to TP610 of the S/S/A/V circuit board. Also, connect channel 2 of the oscilloscope to TP603 of the S/S/A/V circuit board.
- (2) Play back the MH-2 alignment tape.
- (3) Adjust VR603 so that the leading edge of CTL PLS is synchronized with the leading edge of the RF switching pulse as shown in Fig. 3-11.

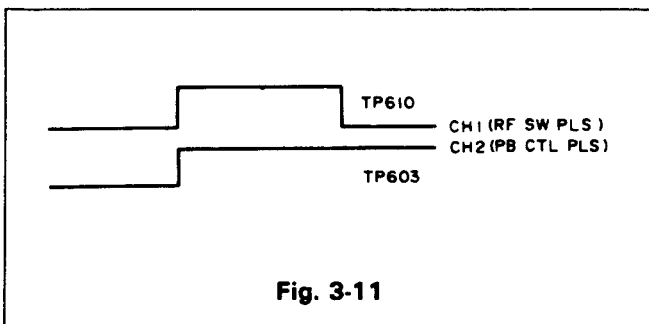


Fig. 3-11

Note: The tracking knob must be set in the center position.

[B] Adjusting the ACE head position

- (1) Connect channel 1 of the oscilloscope to TP402 of the S/S/A/V circuit board, and channel 2 of the oscilloscope to TP610 of the S/S/A/V circuit board or TP901 of the jack terminal circuit board.
- (2) Play back the MH-2 alignment tape, set the tracking knob at the center position, and turn the tapered pin in Fig. 3-10 so that the maximum FM waveform output level is set. Play back the MH-2 alignment tape, and confirm that the maximum FM waveform output level is obtained with the tracking knob set at the center position.

3-6. FINAL TESTING AND CHECKING

- (1) Connect channel 1 of the oscilloscope to TP610 of the S/S/A/V circuit board. Connect channel 2 of the oscilloscope to TP901 of the jack terminal circuit board.
- (2) Confirm that the REC timing is $6.5 H \pm 1 H$.
- (3) Record this signal on a blank tape (using a monochrome or stair-step pattern).
- (4) Check the FM waveforms thus recorded on the tape. Connect channel 1 of the oscilloscope to TP402 of the S/S/A/V circuit board, and connect channel 2 of the oscilloscope to TP610 of the S/S/A/V circuit board. Then, play the tape back.
- (5) Confirm that the degree of evenness (a/b) is greater than 0.8, or greater than 0.85 if minor fluctuations occur.

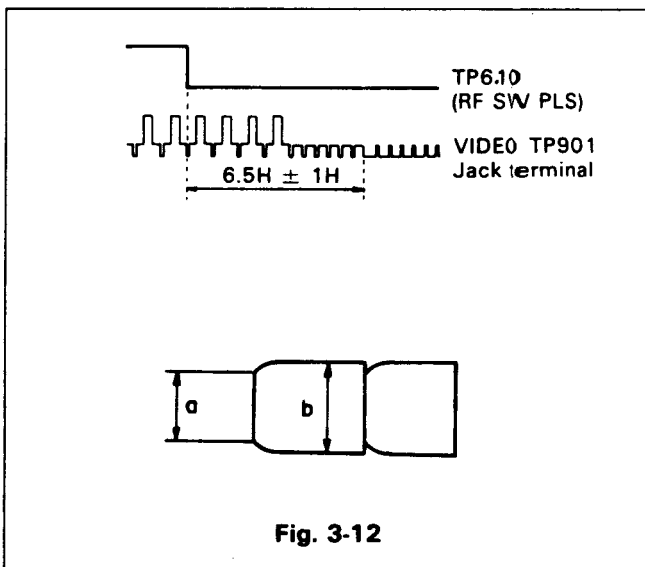


Fig. 3-12

After completing the above test and adjustment procedures, confirm that the tape transport operation is functioning properly, place locking paint on the tapered pin screw.

4. ELECTRICAL ADJUSTMENTS (N9053G/N9055G)

4-1. PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts. Note that these adjustments should only be made after completing all repairs and replacements. Also, do not attempt these adjustments unless the proper equipment is available.

4-1-1 Required test equipment and jig

- | | |
|---|--|
| ① Color TV monitor | ⑤ Audio generator |
| ② Oscilloscope: Wideband | ⑥ Alignment tape (MH-2), and other general electrical tools. |
| ③ Signal generator: Color bar, Stair-step | ⑦ Video tape: E-60, E-120 |
| ④ Frequency counter | ⑧ Digital multimeter or tester |

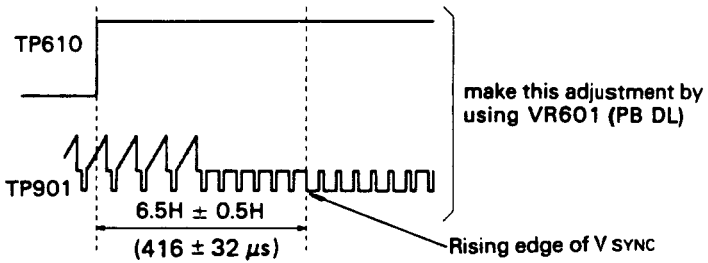
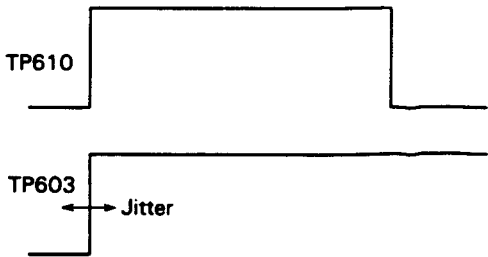
4-1-2 Alignment tape contents

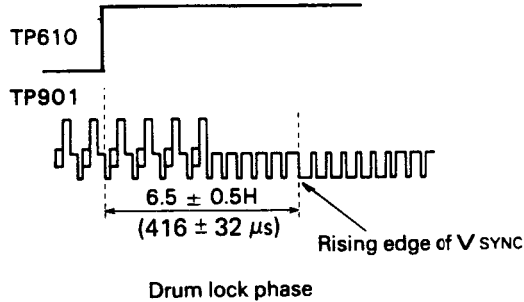
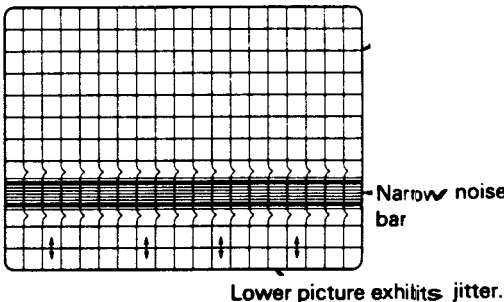
1. MH-2

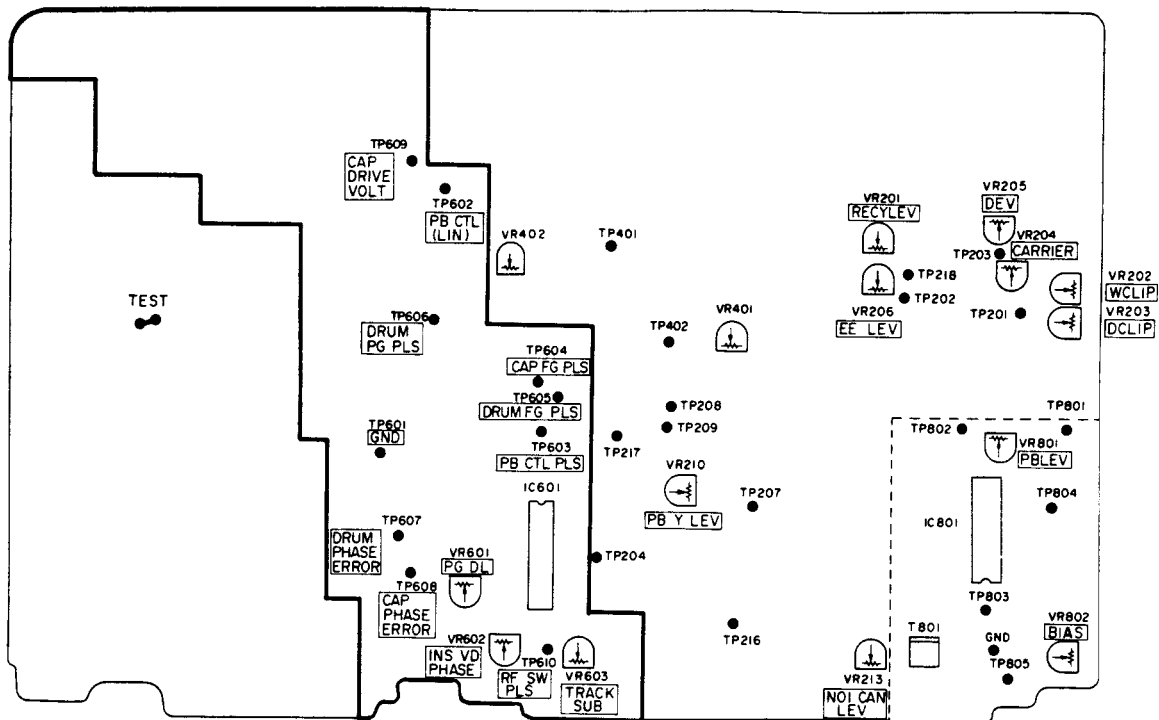
No.	Playback Time	Video Signal	Audio Signal	Applications
1	10 minutes	Stair-step	6 kHz	● Interchangeability checks and adjustments ● Servo circuit checks and adjustments ● Audio head azimuth adjustment
2	5 minutes	(none)	3 kHz	● Tape speed checks ● Wow and flutter checks
3	10 minutes	Color bar	1 kHz 0 dB	● Video signal playback circuit checks and adjustments ● Audio signal playback circuit checks and adjustments
4	3 minutes	RF sweep	(none)	● Video head resonance adjustments ● Marker: 2.0, 4.0, 5.0 MHz (not used)

Table 4-1 MH-2 contents

4-2. SERVO CIRCUIT (S/S/A/V board) (N9053G)

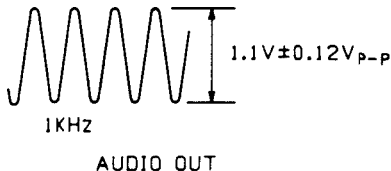
No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
1	Video Tape Switching Point	TP610 (RF SW PLS) TP901 (VIDEO OUT) (Jack terminal circuit board)	VR601 (PB DL)	MH-2 P.B.	1. Connect an oscilloscope to TP610 and TP901. 2. Play back MH-2 and confirm that the servo is locked. possible picture is obtained on the monitor screen. 3. Adjust VR601 so that the phase relationship between the RF SW pulse and video signal shown below is displayed on the oscilloscope screen. 
2	Tracking Sub VR	TP610 (RF SW PLS) TP603 (PB CTL PLS)	VR603 (TRACKING SUB)	MH-2 P.B.	1. Connect an oscilloscope to TP610 and TP603. 2. Set the tracking VR to its center detent position. 3. Play back the MH-2 alignment tape, and adjust VR603 so that the phase relationship between the waveforms shown in the figure below is established. (When the oscilloscope is externally triggered by a signal issued from TP610, the waveform of TP603 will exhibit lateral jitter. Adjust VR603 so that the rising edge of TP603 is set to the center of jitter.) 

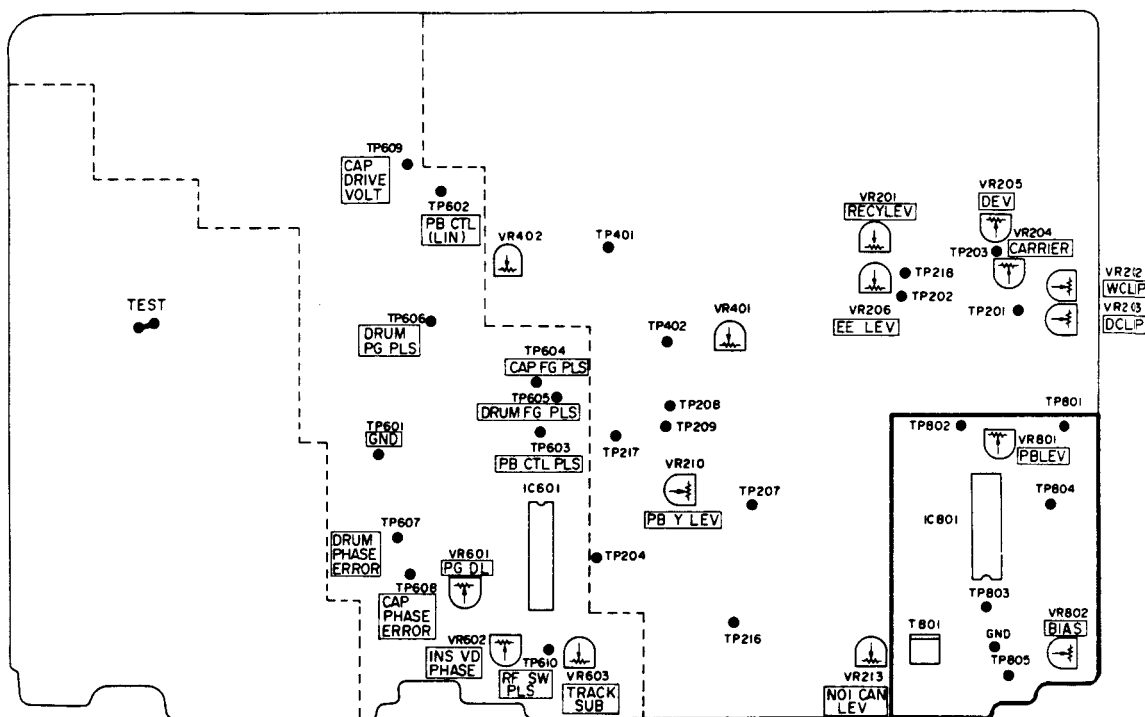
No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
3	Drum Lock Phase (REC TIMING)	TP610 (RF SW PLS) TP901 (VIDEO OUT) (Jack terminal circuit board)	Check	● PAL Color bar ● REC	1. Connect an oscilloscope to TP610 and TP901. 2. Operating in the REC mode, and confirm that the phase relationship between the waveforms of TP610 and TP901 shown in the figure below is established. Note: If the tape is seriously damaged, the lock phase will exhibit significant jitter when checking is performed. If the tape damage is not serious and the center of the lock phase jitter satisfies the relationship shown below, the tape will be accepted.  TP610 TP901 $6.5 \pm 0.5H$ ($416 \pm 32 \mu s$) Rising edge of V SYNC Drum lock phase
4	Insert VD	TV monitor	VR602 (INS VD PHASE)	● TV signal or cross-hatch pattern ● REC, PB	1. Record the signal for more than 1 minute. 2. Play back the recorded section and advance the frame in the still mode, and adjust it so that two noise bars are not simultaneously displayed on the screen. 3. When a narrow noise bar (there may be two noise bars; narrow and wide) is displayed on the screen, adjust VR602 to minimize the vertical jitter of the upper picture.  Upper picture appears to be still. Narrow noise bar Lower picture exhibits jitter. VD adjustment in still mode



SERVO * This circuit board is viewed from component side.

4-3. AUDIO CIRCUIT (S/S/A/V board) (N9053G)

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
1	PB Level	AUDIO Output Terminal	VR801 (P.B LEVEL)	● Alignment Tape MH-2 ● Play Back	Adjust VR801 so that the output level of the AUDIO output terminal is set to -8 ± 1 dBs. (Oscilloscope display: 1.1 ± 0.12 Vp-p.) 
2	Head Bias	TP804, GND	VR802 (BIAS LEVEL)	● No signal is input ● REC mode	Adjust VR802 so that the voltage between TP805 ⊕ and GND terminal ⊖ (displayed on the AC millivoltmeter) of the S/S/A/V board is set to 110 ± 10 mVrms.

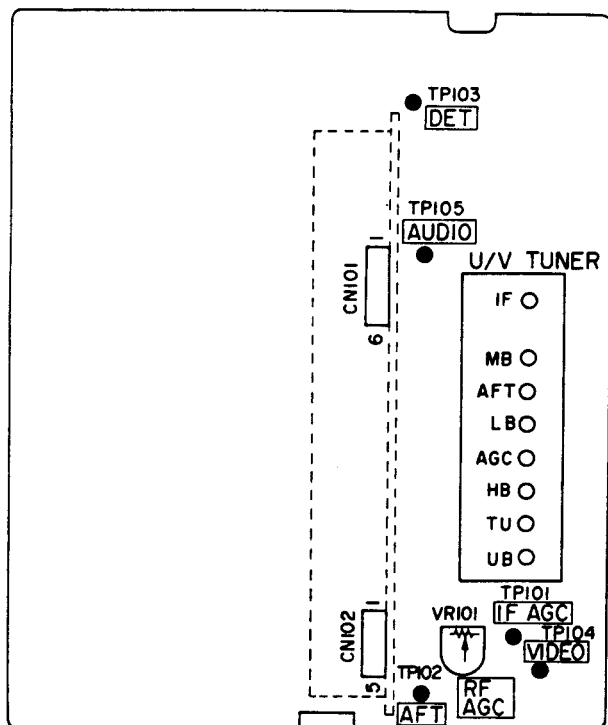


AUDIO

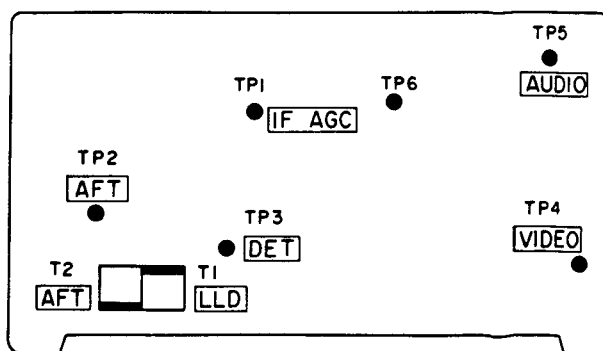
* This circuit board is viewed from component side.

4-4. TUNER/IF CIRCUIT (N9053G)

1	AFT transformer adjustments (1) Connect the 38.9 MHz, 80 dBμ unmodulated signal to the IF output terminal of the Tuner Unit, by using the input pad shown below. Note that no signal is being input to the ANT IN terminal at this time. (2) Connect an oscilloscope to TP102 (AFT). (3) Slowly turn T2 (AFT Transformer) to adjust the output voltage of TP102 to 5.0 ± 0.5 VDC at the point where the voltage suddenly fluctuates. (Do not adjust the voltage to 6.0 VDC.)
2	RF AGC adjustments (1) Input a 66 dBμ RF signal (channel E7CH) to the ANT IN terminal. (2) Connect a digital voltmeter to AGC terminal of the TUNER UNIT, and adjust VR101 (RF AGC) so that the voltage at the AGC terminal is set to 6.5 ± 0.5 VDC.

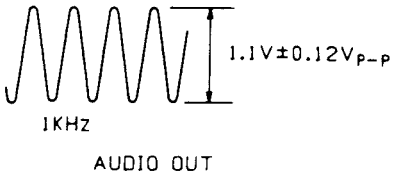


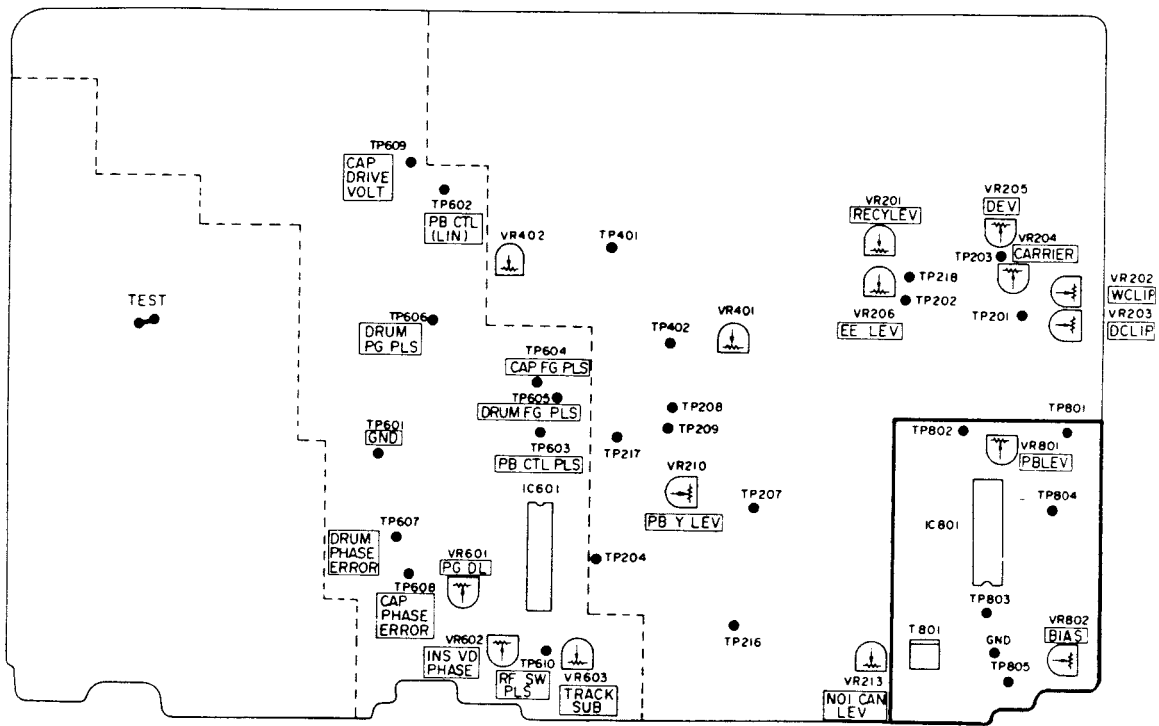
TUNER



IF

4-3. AUDIO CIRCUIT (S/S/A/V board) (N9053G)

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
1	PB Level	AUDIO Output Terminal	VR801 (P.B LEVEL)	● Alignment Tape MH-2 ● Play Back	Adjust VR801 so that the output level of the AUDIO output terminal is set to -8 ± 1 dBs. (Oscilloscope display: 1.1 ± 0.12 V _{p-p}) 
2	Head Bias	TP804, GND	VR802 (BIAS LEVEL)	● No signal is input ● REC mode	Adjust VR802 so that the voltage between TP805 ⊕ and GND terminal ⊖ (displayed on the AC millivoltmeter) of the S/S/A/V board is set to 110 ± 10 mVrms.



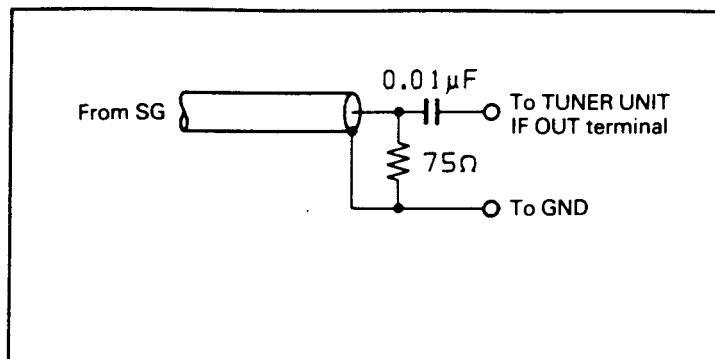
AUDIO

• This circuit board is viewed from component side.

4-4. TUNER/IF CIRCUIT (N9053G)

1 AFT transformer adjustments

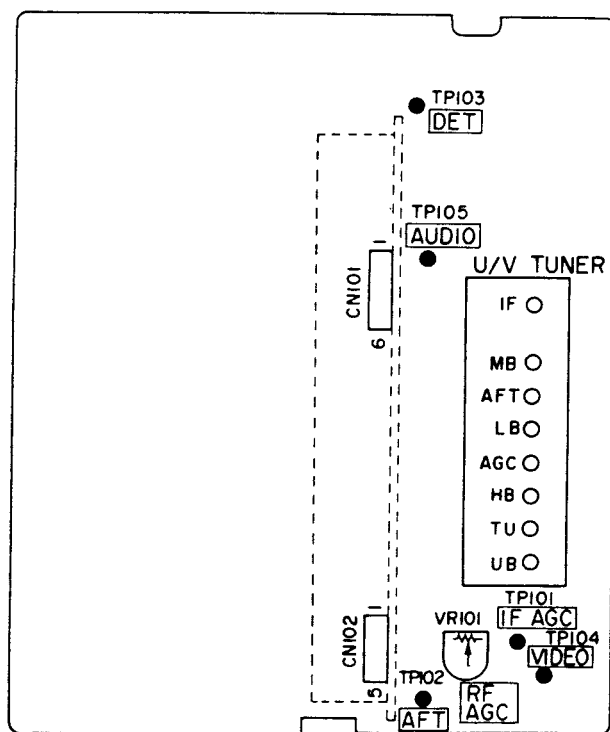
- (1) Connect the 38.9 MHz, 80 dB μ unmodulated signal to the IF output terminal of the Tuner Unit, by using the input pad shown below.
Note that no signal is being input to the ANT IN terminal at this time.



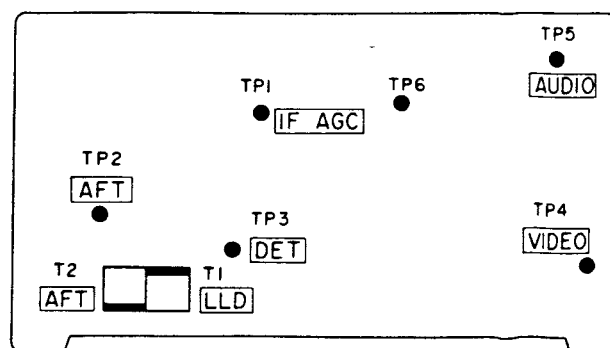
- (2) Connect an oscilloscope to TP102 (AFT).
- (3) Slowly turn T2 (AFT Transformer) to adjust the output voltage of TP102 to 5.0 ± 0.5 VDC at the point where the voltage suddenly fluctuates. (Do not adjust the voltage to 6.0 VDC.)

2 RF AGC adjustments

- (1) Input a 66 dB μ RF signal (channel E7CH) to the ANT IN terminal.
- (2) Connect a digital voltmeter to AGC terminal of the TUNER UNIT, and adjust VR101 (RF AGC) so that the voltage at the AGC terminal is set to 6.5 ± 0.5 VDC.



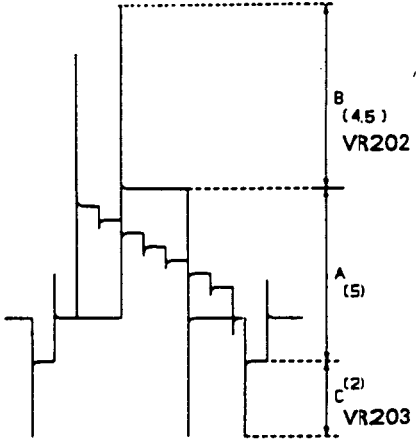
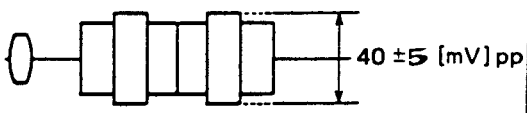
TUNER

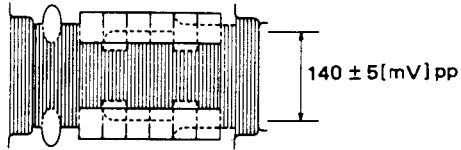
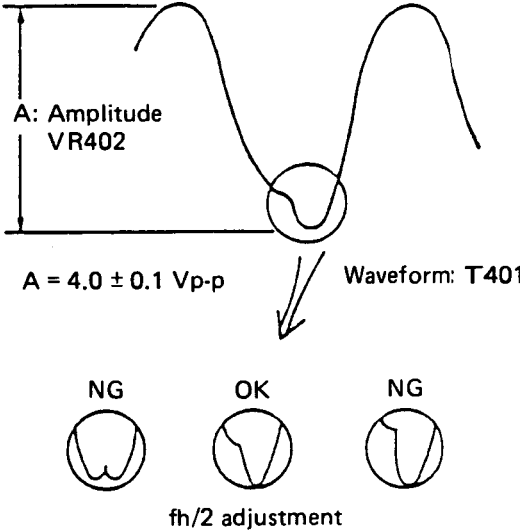


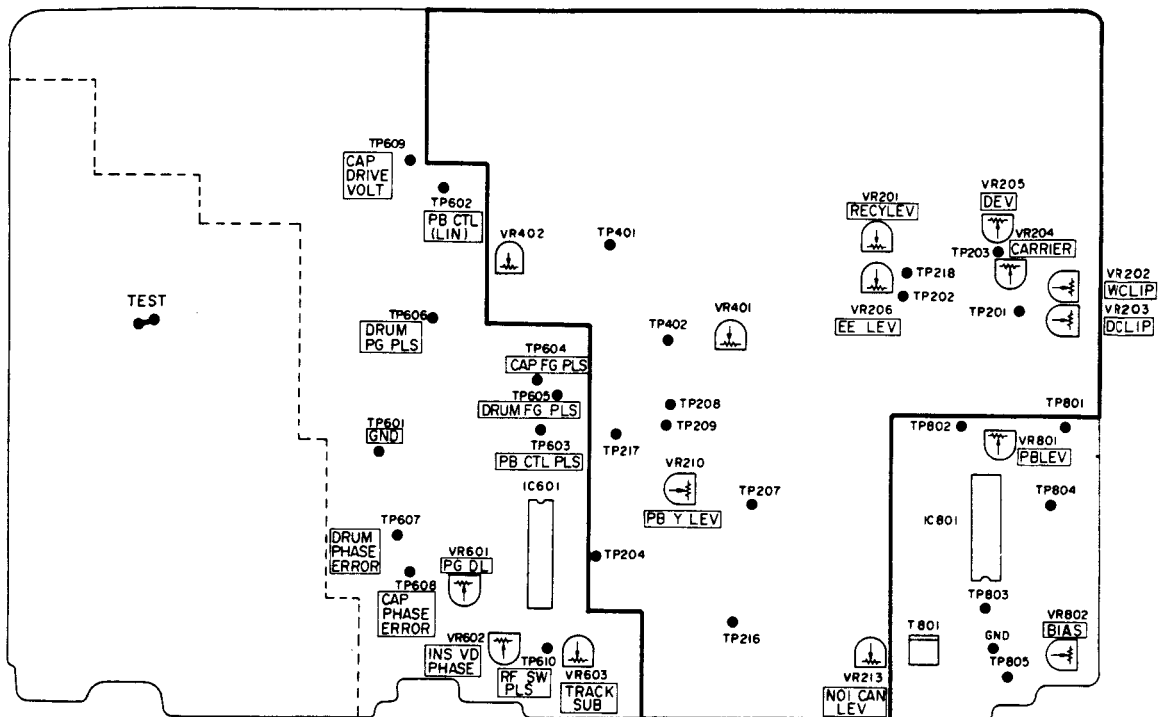
IF

4-5. VIDEO CIRCUIT (S/S/A/V board) (N9053G)

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
1	EE Level	TP901 (Trigger: TP204) of JACK TERMINAL board	VR206	Input (VIDEO IN): PAL Color Bar STOP	1. Input a PAL color bar signal to VIDEO IN. 2. Connect an oscilloscope to TP901. (Terminate VIDEO OUT with 75-ohm impedance.) 3. Adjust VR206 (EE) so that signal issued from sync tip to white peak is set to 1.0 ± 0.1 Vp-p.
2	Carrier Deviation	TP202 TP901 (Trigger: TP204)	VR204 VR210 VR205	REC MH-2	1. Set the INPUT SELECT Switch to LINE. 2. Set the REC mode and connect the frequency counter to TP202. 3. Adjust VR204 (CARRIER) so that the frequency is set to 3.80 ± 0.05 MHz. 4. Play back the color bar section of MH-2, and connect an oscilloscope to TP901. 5. Adjust VR210 so that the amplitude of the playback color bar signal is set to $1.0V \pm 0.05$ Vp-p. 6. Input the color bar signal to the VIDEO IN terminal and record it. Then play this signal back. Connect an oscilloscope to TP901 to measure the amplitude of the playback color bar signal. a) When the measured value is within 1.0 ± 0.1 Vp-p, proceed to the following item. b) When the measured value is not in the 1.0 ± 0.1 Vp-p range, adjust according to procedure 7. 7. Set the unit into the STOP mode: a) When the measured value is less than 0.9 Vp-p, rotate VR205 (DEV) counterclockwise by approx. 10 degrees while observing the PC board from the component surface. (Note: When VR205 is rotated counterclockwise while observing the board from the component surface, the amplitude of the recording signal is increased. When it is rotated clockwise, the amplitude of the recording signal is decreased.) Then record the color bar signal and play it back to confirm that the amplitude is within 1.0 ± 0.1 Vp-p. If the amplitude does not satisfy this range, repeat this procedure as required. If the amplitude is too large, rotate VR205 clockwise and confirm through recording and playback. b) When the measured value exceeds 1.1 Vp-p, rotate VR205 (DEV) clockwise by approx. 10 degrees while observing the board from the component surface. Then record the color bar signal and play it back to confirm that the amplitude is within 1.0 ± 0.1 Vp-p. If the amplitude is too small, adjust VR205 in the same manner as noted in Item a). If the amplitude is too large, repeat this procedure as required.

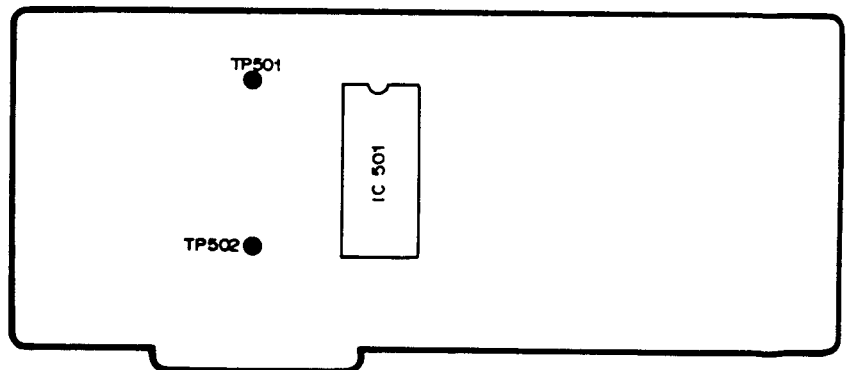
No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
3	White Clip Dark Clip	TP203 (Trigger: TP204)	VR202 (White Clip), VR203 (Dark Clip)	PAL Color Bar, REC	1. Input the PAL color bar signal to the VIDEO IN terminal. 2. Connect an oscilloscope to TP203 of the S/S/A/V board, and adjust the amplitude CAL knob of the oscilloscope so that the distance between sync tip and white peak of the waveform reads 5 scales. 3. Adjust VR202 (WHITE) and VR203 (DARK) so that the waveform overshoot and undershoot satisfy the ratio shown below.  $A : B : C = 5 : 4.5 : 2$
4	REC Color Level Adjustment	TP501 (Trigger: TP204) of PRE AMP board	VR402	PAL Color Bar REC	1. Input the PAL color bar signal to the VIDEO IN terminal. 2. Connect an oscilloscope to TP501. 3. Rotate VR201 to minimize the FM signal. 4. Adjust VR402 so that the amplitude of color bar signal RED section is set to 40 ± 5 mV. Note: Be sure to make the adjustment noted in Item 5 after this adjustment. 

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
5	REC Y FM Level Adjustment	TP501 (Trigger: TP204) (PRE AMP board)	VR201	PAL Color Bar, REC	1. After making the adjustment in Item 5, adjust VR201 so that the amplitude of white peak section is set to $140 \pm 5\text{mV}$. 
6	SECAM DET. sync amplifier oscillating level	TP401	VR402 T401	Input: SECAM color bar signal REC	1. Input a SECAM color bar signal to VIDEO IN. 2. Connect an oscilloscope (10:1) to TP401. 3. Adjust VR402 until the waveform at TP401 appears as shown below in MESECAM mode. (If the waveform appears otherwise, adjust T401.) 
7		TP401		MESECAM self recording playback	1. Record SECAM color bar signals in SECAM mode and play back. 2. Connect an oscilloscope (10:1) to TP401. Check that the waveform has an amplitude (A) of $4.0 \pm 0.2\text{ Vp-p}$.



VIDEO

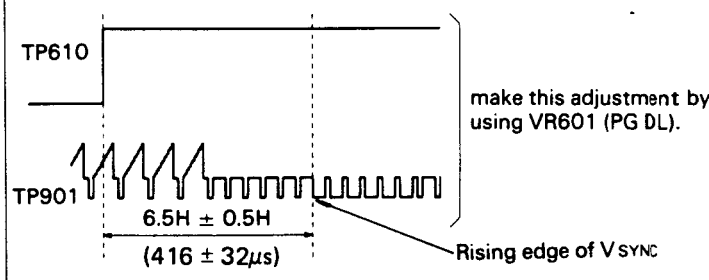
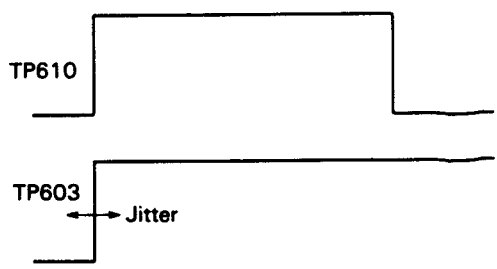
* This circuit board is viewed from component side.

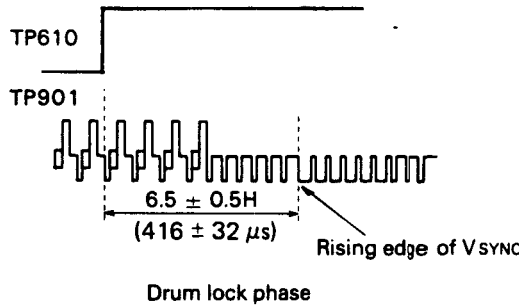


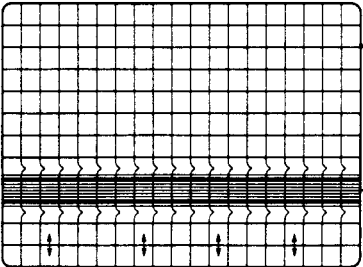
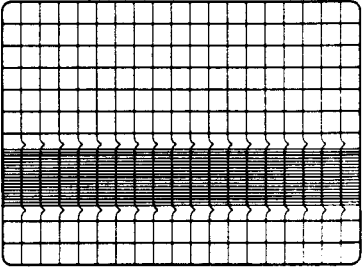
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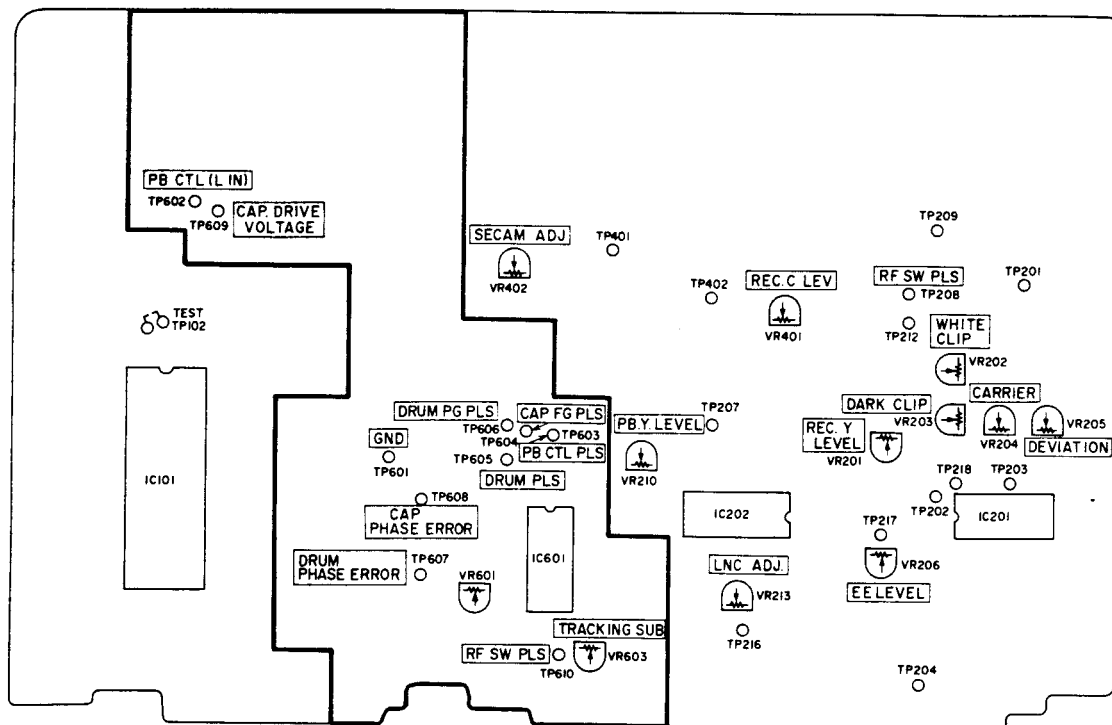
* This circuit board is viewed from component side.

4-2-1 SERVO CIRCUIT (S/S/V board) (N9055G)

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
1	Video Tape Switching Point	TP610 (RF SW PLS) TP901 (VIDEO OUT) (Jack terminal circuit board)	VR601 (PG DL)	MH-2 P.B.	1. Connect an oscilloscope to TP610 and TP901. 2. Play back the alignment tape MH-2 and adjust the tracking VR so that the best-possible picture is obtained on the monitor screen. 3. Adjust VR601 so that the phase relationship between the RF SW pulse and video signal shown below is displayed on the oscilloscope screen. 
2	Tracking Sub VR	TP610 (RF SW PLS) TP603 (PB CTL PLS)	VR603 (TRACKING SUB)	MH-2 P.B.	1. Connect an oscilloscope to TP610 and TP603. 2. Set the tracking VR to its center detent position. 3. Play back the MH-2 alignment tape, and adjust VR603 so that the phase relationship between the waveforms shown in the figure below is established. (When the oscilloscope is externally triggered by a signal issued from TP610, the waveform of TP603 will exhibit lateral jitter. Adjust VR603 so that the rising edge of TP603 is set to the center of jitter.) 

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
3	Drum Lock Phase (REC TIMING)	TP610 (RF SW PLS) TP901 (VIDEO OUT) (Jack terminal circuit board)	Check	● Color bar ● REC	1. Connect an oscilloscope to TP610 and TP901. 2. Set the REC mode switch to SP, and confirm that the phase relationship between the waveforms of TP610 and TP901 shown in the figure below is established. Note: If the tape is seriously damaged, the lock phase will exhibit significant jitter when checking is performed. If the tape damage is not serious and the center of the lock phase jitter satisfies the relationship shown below, the tape will be accepted.  TP610 TP901 $6.5 \pm 0.5H$ ($416 \pm 32 \mu s$) Rising edge of Vsync Drum lock phase

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
4	Insert VD	TV monitor	VR2003 (INS VD) (On SUB FUNCTION board)	● TV signal or cross-hatch pattern ● REC, PB	1. Record the signal for more than 1 minute. 2. Play back the recorded section and advance the frame in the still mode, and adjust it so that two noise bars are not simultaneously displayed on the screen. 3. When a narrow noise bar (there may be two noise bars; narrow and wide) is displayed on the screen, adjust VR2003 to minimize the vertical jitter of the upper picture. Upper picture appears to be still.  Narrow noise bar Lower picture exhibits jitter. VD adjustment in still mode  Example of wide noise bar

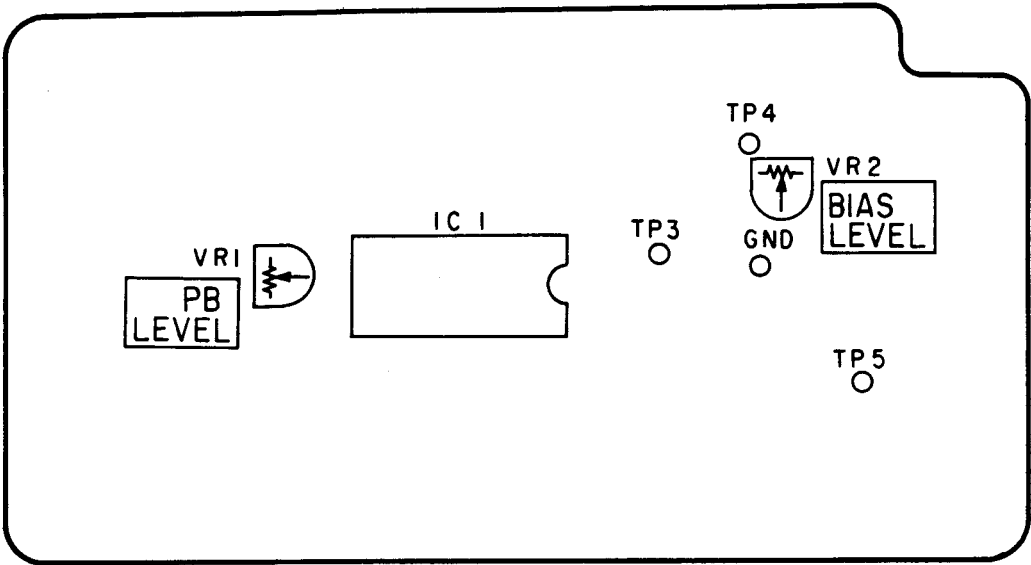


SERVO

* This circuit board is viewed from component side.

4-3-1 AUDIO CIRCUIT (AUDIO board) (N9055G)

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
1	PB Level	AUDIO Output Terminal	VR1 (P.B LEVEL)	● Alignment Tape MH-2	Adjust VR1 so that the output level of the AUDIO output terminal is set to $-8\text{ dBs} \pm 1\text{ dBs}$.
2	Head Bias	AUDIO board TP4, GND	VR2 (BIAS LEVEL)	● No signal is input ● SP (2H) REC mode	Adjust VR2 so that the voltage between TP4 ⊕ and GND terminal ⊖ (displayed on the AC millivoltmeter) of the AUDIO board is set to $110 \pm 10\text{mVrms}$.



AUDIO

* This circuit board is viewed from component side.

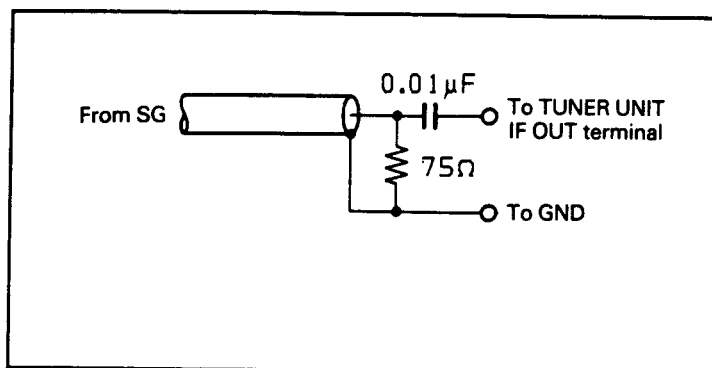
4-4-1 TUNER/IF CIRCUIT (N9055G)

1

AFT transformer adjustments

- (1) Connect the 38.9 MHz 80 dB μ unmodulated signal to the IF output terminal of the Tuner Unit, by using the input pad shown below.

Note that no signal is being input to the ANT IN terminal at this time.

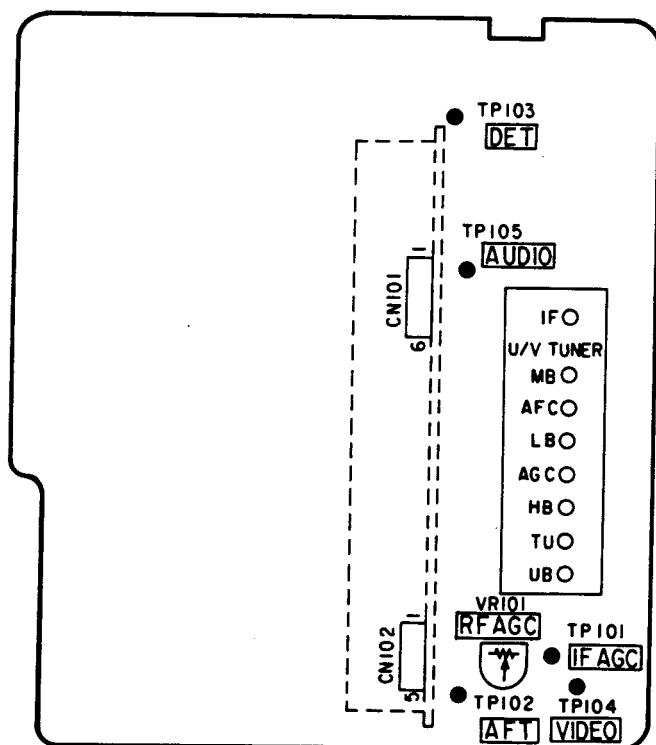


- (2) Connect an oscilloscope to TP102 (AFT).
- (3) Slowly turn T2 (AFT Transformer) to adjust the output voltage of TP102 to 5.0 ± 0.5 VDC at the point where the voltage suddenly fluctuates. (Do not adjust the voltage to 6.0 VDC.)

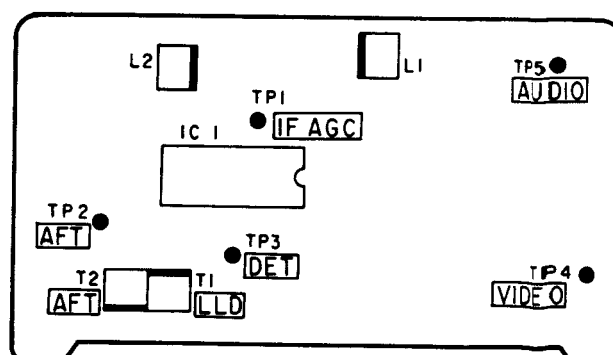
2

RF AGC adjustments

- (1) Input a 66 dB μ RF signal (channel E7CH) to the ANT IN terminal.
- (2) Connect a digital voltmeter to AGC terminal of the TUNER UNIT, and adjust VR101 (RF AGC) so that the voltage at the AGC terminal is set to 6.5 ± 0.5 VDC.



TUNER

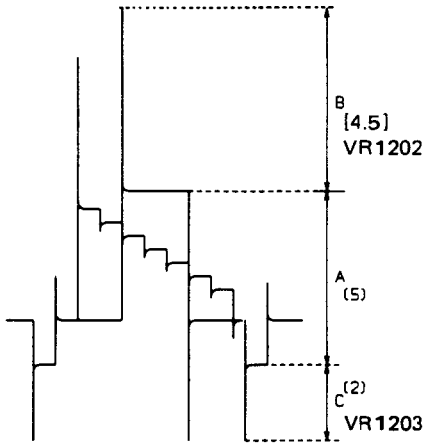
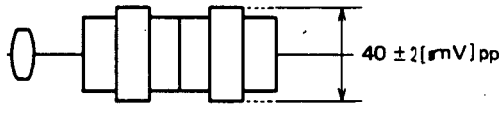


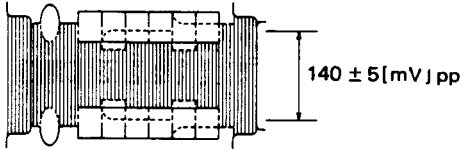
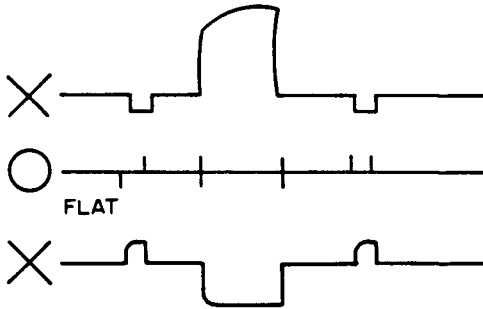
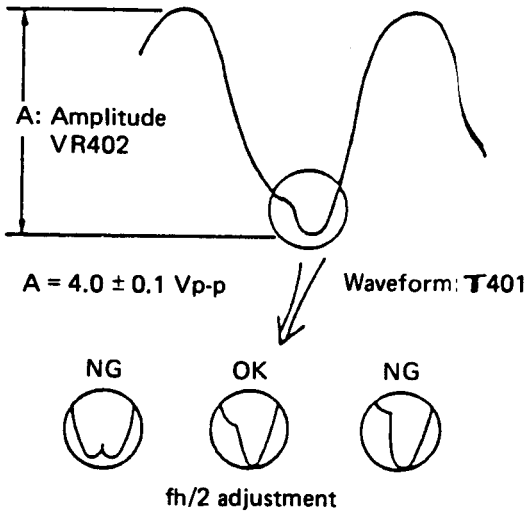
IF

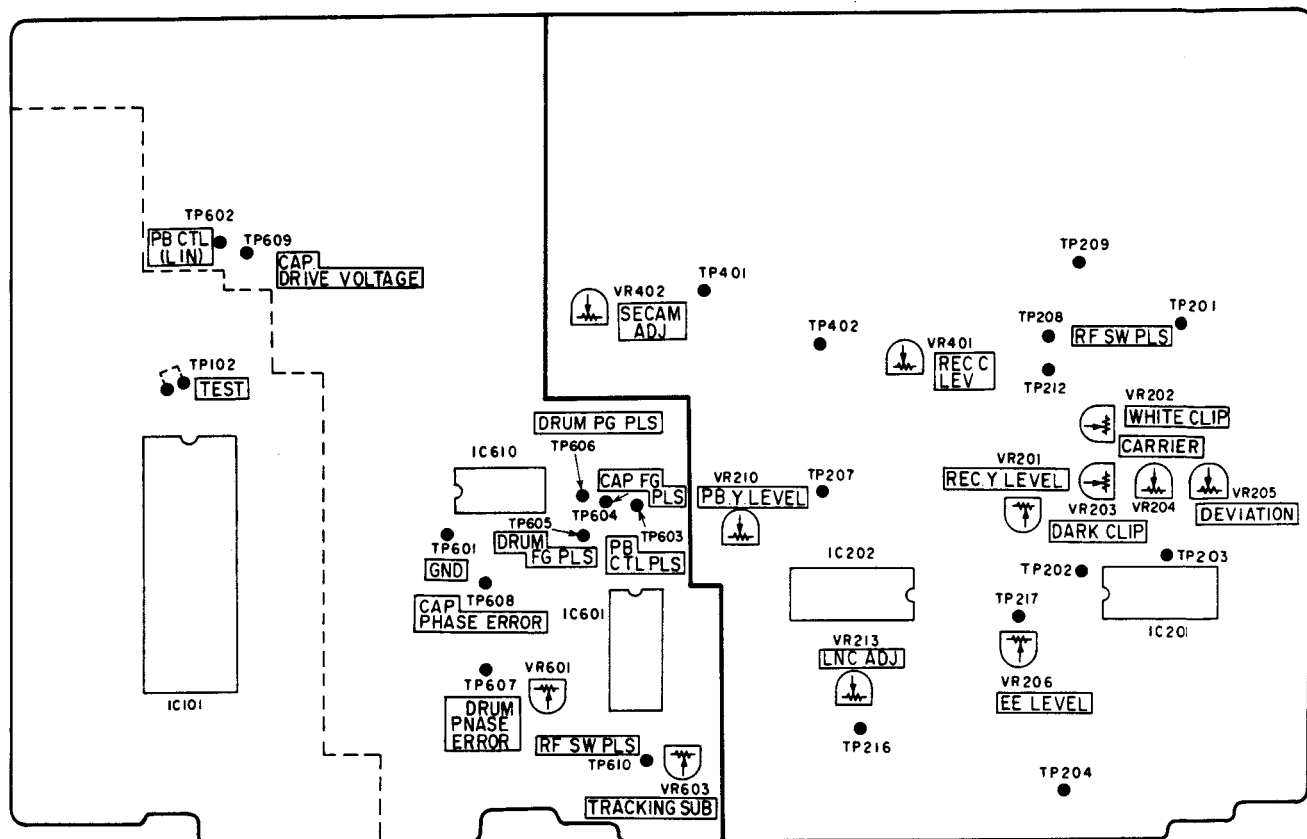
* This circuit board is viewed from component side.

4-5-1 VIDEO CIRCUIT (S/S/V board) (N9055G)

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
1	EE Level	TP1901 (Trigger: TP204) of JACK TER- MINAL board	VR1206	Input (VIDEO IN). PAL Color Bar STOP	1. Input a color bar signal to VIDEO IN. 2. Connect an oscilloscope to TP901. (Terminate VIDEO OUT with 75-ohm impedance.) 3. Adjust VR206 (EE) so that signal issued from sync tip to white peak is set to 1.0 ± 0.1 Vp-p.
2	Carrier Deviation	TP1202 TP1901 (Trigger: TP1204)	VR1204 VR1210 VR1205	REC MH-2	1. Set the INPUT SELECT switch to LINE. 2. Set the REC mode, and connect the frequency counter to TP1202. 3. Adjust VR1204 (CARRIER) so that the frequency is set to 3.80 ± 0.05 MHz. 4. Play back the color bar section of MH-2, and connect an oscilloscope to TP1901. 5. Adjust VR1201 so that the amplitude of the playback color signal is set to $1.0V \pm 0.05$ Vp-p. 6. Input the color bar signal to the VIDEO IN terminal and record it. Then play this signal back. Connect an oscilloscope to TP901 to measure the amplitude of the playback color bar signal. a) When the measured value is within 1.0 ± 0.1 Vp-p, proceed to the following item. b) When the measured value is not in the 1.0 ± 0.1 Vp-p range, adjust according to procedure 7. 7. Set the unit into the STOP mode: a) When the measured value is less than 0.9 Vp-p, rotate VR1205 (DEV) counterclockwise by approx. 10 degrees while observing the PC board from the component surface. (Note: When VR1205 is rotated counterclockwise while observing the board from the component surface, the amplitude of the recording signal is increased. When it is rotated clockwise, the amplitude of the recording signal is decreased.) Then record the color bar signal and play it back to confirm that the amplitude is within 1.0 ± 0.1 Vp-p. If the amplitude does not satisfy this range, repeat this procedure as required. If the amplitude is too large, rotate VR1205 clockwise and confirm through recording and playback. b) When the measured value exceeds 1.1 Vp-p, rotate VR1205 (DEV) clockwise by approx. degrees while observing the board from the component surface. Then record the color bar signal and play it back to confirm that the amplitude is within 1.0 ± 0.1 Vp-p. If the amplitude is too small , adjust VR1205 in same manner as noted in Item a). If the amplitude is too large, repeat this procedure as required.

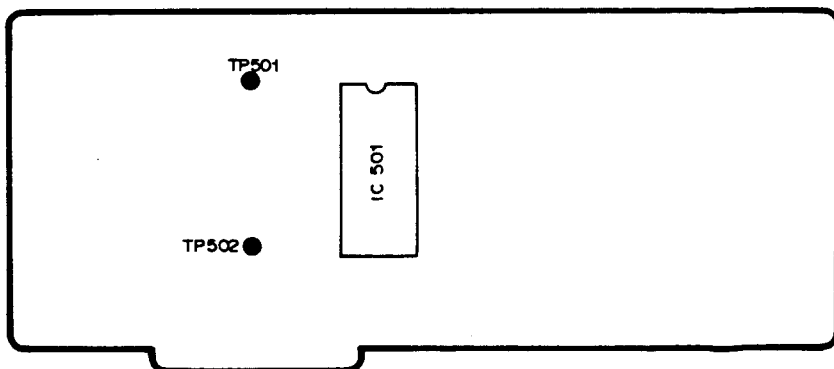
No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
3	White Clip Dark Clip	TP1203 (Trigger: TP1204)	VR1202 (White Clip), VR1203 (Dark Clip)	PAL Color Bar, REC	1. Input the color bar signal to the VIDEO IN terminal. 2. Connect an oscilloscope to TP1203 of the S/S/V board, and adjust the amplitude CAL knob of the oscilloscope so that the distance between sync tip and white peak of the waveform reads 5 scales. 3. Adjust VR1202 (WHITE) and VR1203 (DARK) so that the waveform overshoot and undershoot satisfy the ratio shown below.  A : B : C = 5 : 4.5 : 2
4	VCO Frequency Adjustment	TP1401	VR1401	SP, (2H), MH-2 (Color Bar) Playback	1. Connect a digital multimeter or tester to TP1401. (The oscilloscope DC range can be used as a substitute.) 2. Playback the color bar section of MH-2. 3. Adjust VR1401 so that the DC voltage of TP1401 is set to 2.5 ± 0.02 VDC.
5	REC Color Level Adjustment	TP1501 (Trigger: TP1205) of PRE AMP board	VR1402	PAL, Color Bar REC	1. Input the color bar signal to the VIDEO IN terminal. 2. Connect an oscilloscope to TP1501. 3. Rotate VR1201 to minimize the FM signal. 4. Adjust VR1402 so that the amplitude of color bar signal RED section is set to 40 ± 2 mV. Note: Be sure to make the adjustment noted in Item 6 after this adjustment. 

No.	Item	Check-point	Adjustment Parts	Signal & Mode	Description and Waveform
6	REC Y FM Level Adjustment	TP1501 (Trigger: TP1204 (PRE AMP board))	VR1201	PAL Color Bar, REC	1. After making the adjustment in Item 5, adjust VR1201 so that the amplitude of white peak section is set to 140 ± 5 mV. 
7	Noise Cancel Level Adjustment	TP1207 (Trigger TP1204) of S/S/V board	VR1213 of S/S/V board	PB	Play back the tape prerecorded and adjust VR1213 so that TP1207 waveforms of the S/S/V board are flat. AT this time, waveform difference should be less than 20 mVpp. 
8	SECAM DET. sync amplifier oscillating level	TP401	VR402 T401	Input: SECAM color bar signal REC	1. Input a SECAM color bar signal to VIDEO IN. 2. Connect an oscilloscope (10:1) to TP401. 3. Adjust VR402 until the waveform at TP401 appears as shown below in MESECAM mode. (If the waveform appears otherwise, adjust T401.) 
9		TP401		MESECAM self recording playback	1. Record SECAM color bar signals in SECAM mode and play back. 2. Connect an oscilloscope (10:1) to TP401. Check that the waveform has an amplitude (A) of 4.0 ± 0.2 Vp-p.



VIDEO

* This circuit board is viewed from component side.

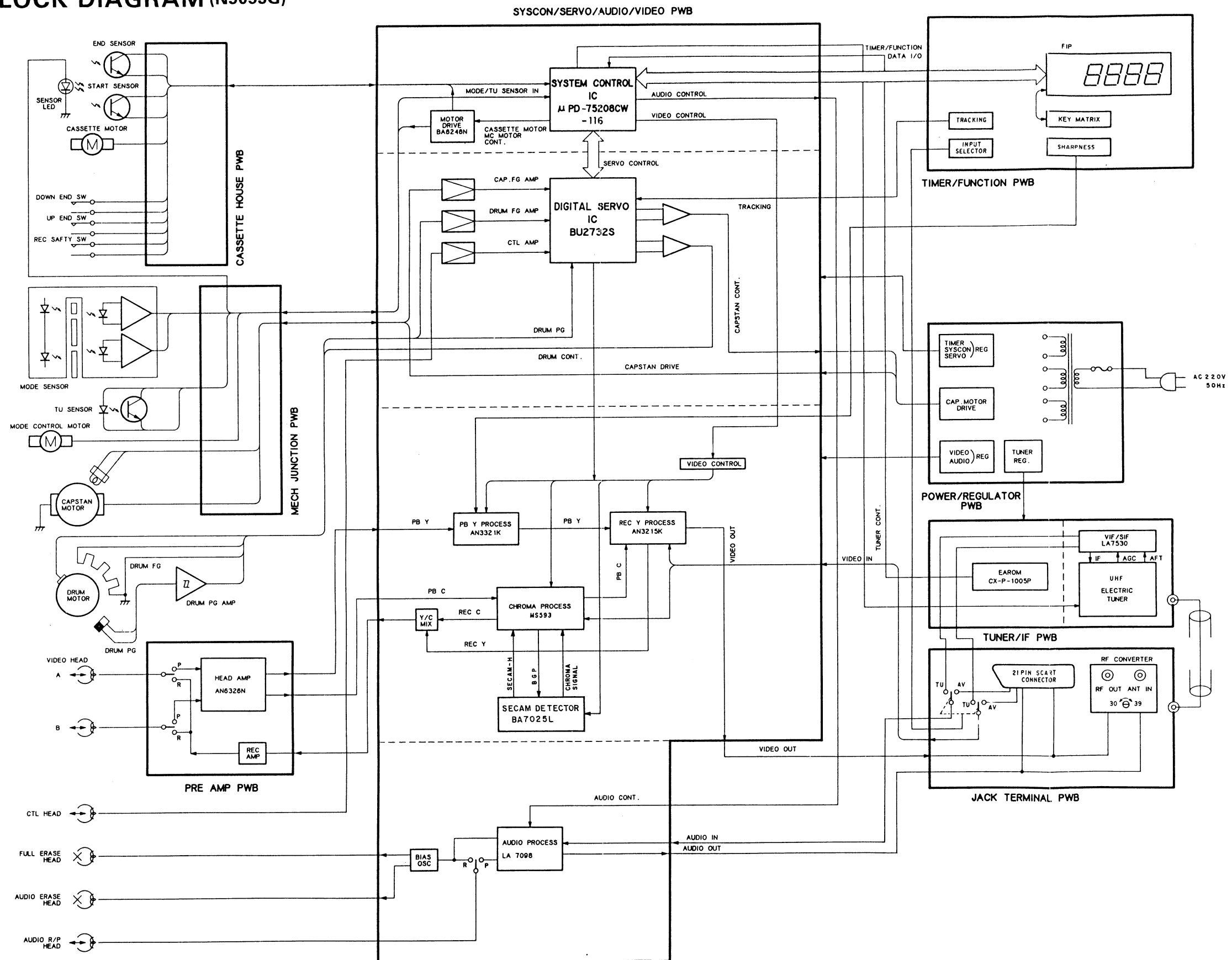


PREAMP

* This circuit board is viewed from component side.

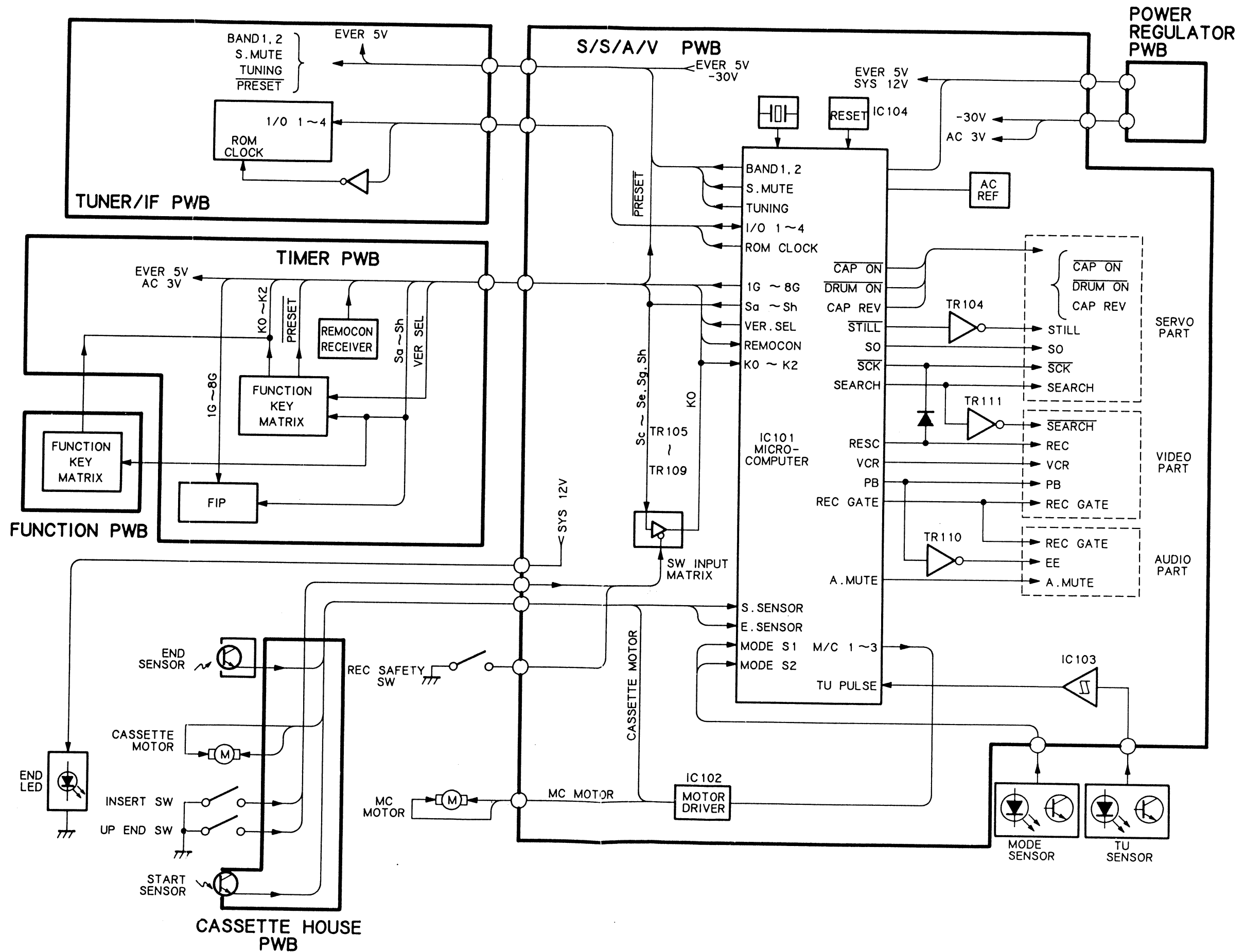
SECTION 4 DIAGRAMS AND TIMING CHARTS (N9053G)

1. GENERAL BLOCK DIAGRAM (N9053G)

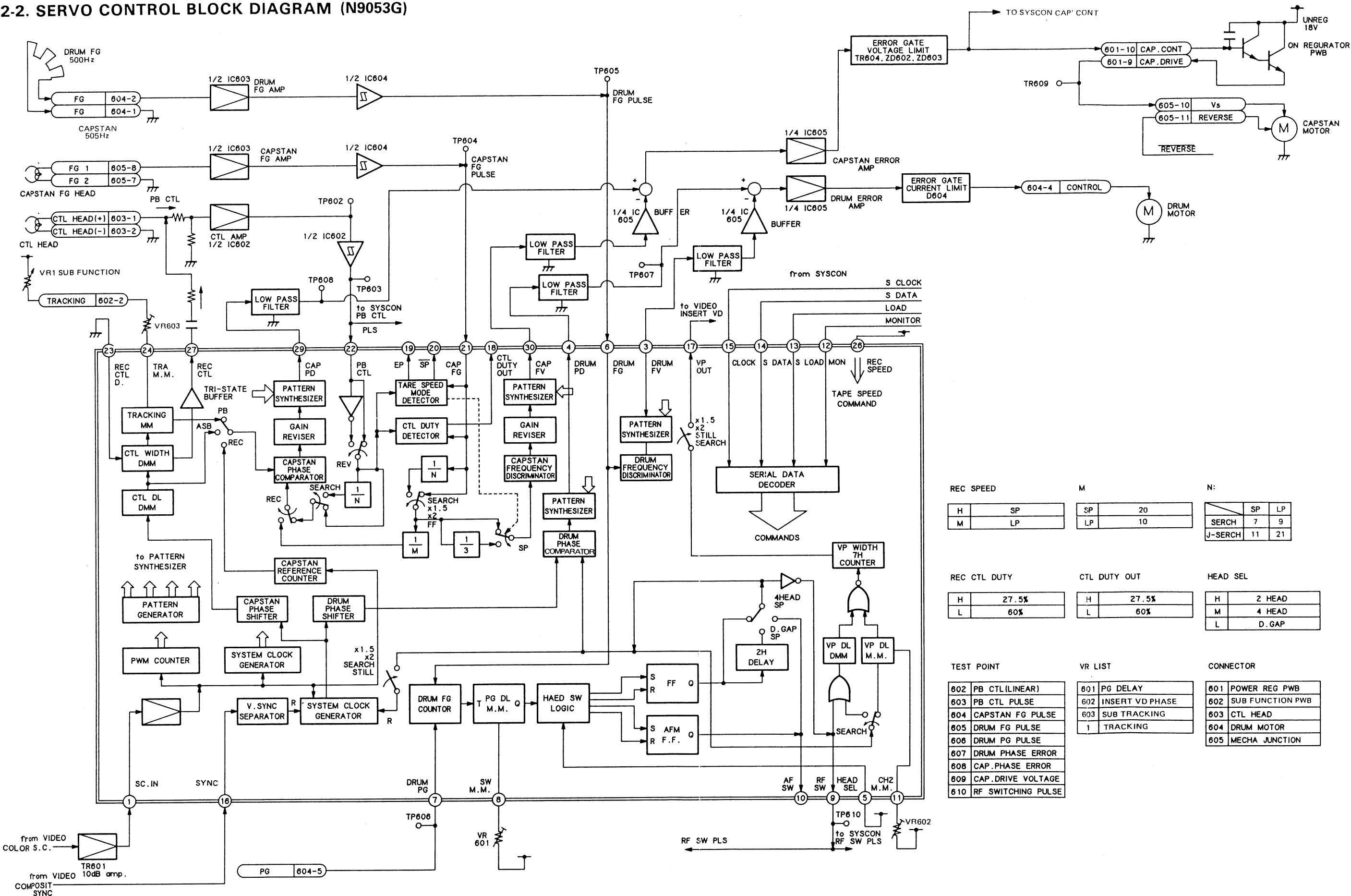


2. BLOCK DIAGRAM

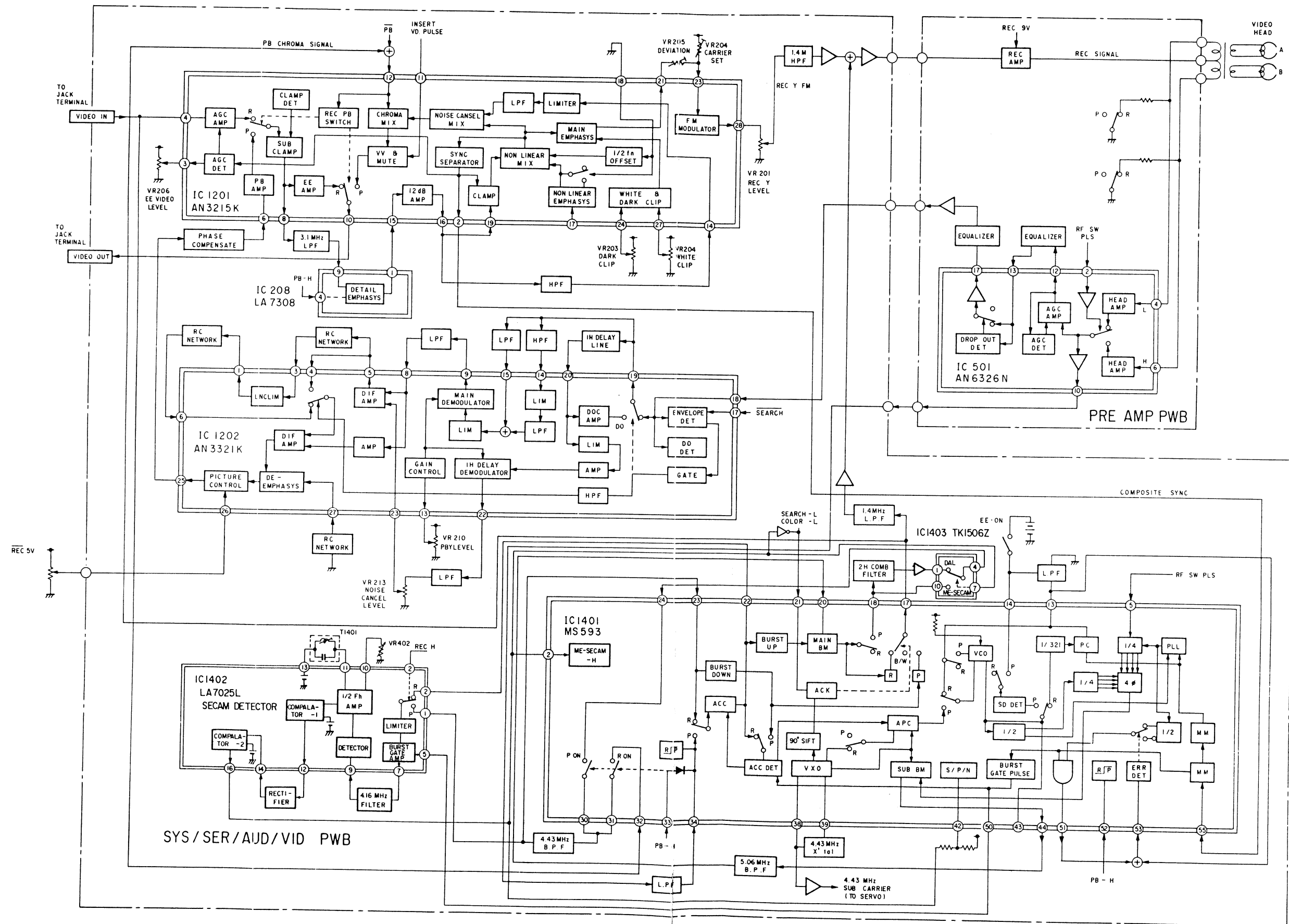
2-1. SYSTEM CONTROL BLOCK DIAGRAM (N9053G)



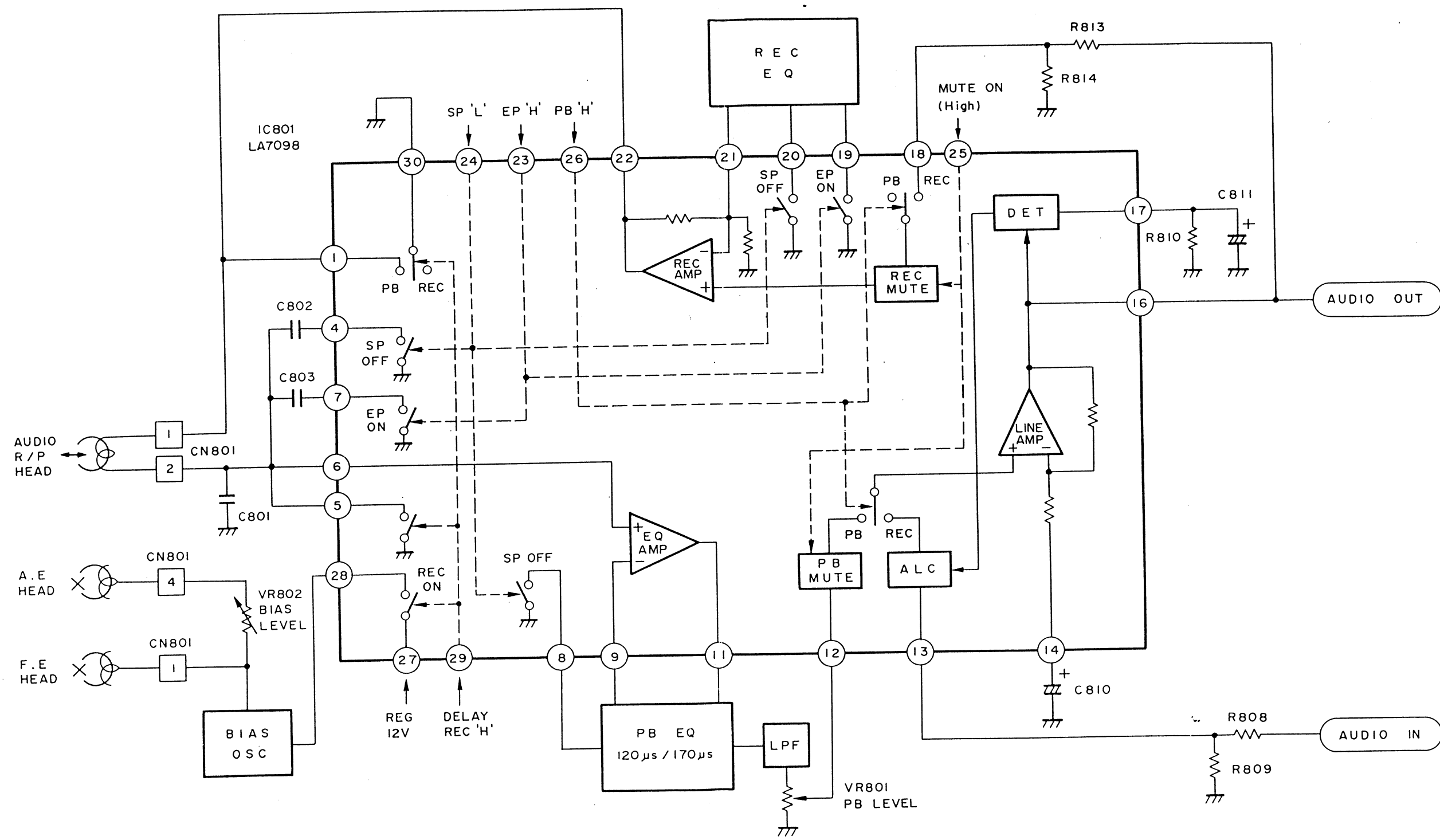
2-2. SERVO CONTROL BLOCK DIAGRAM (N9053G)



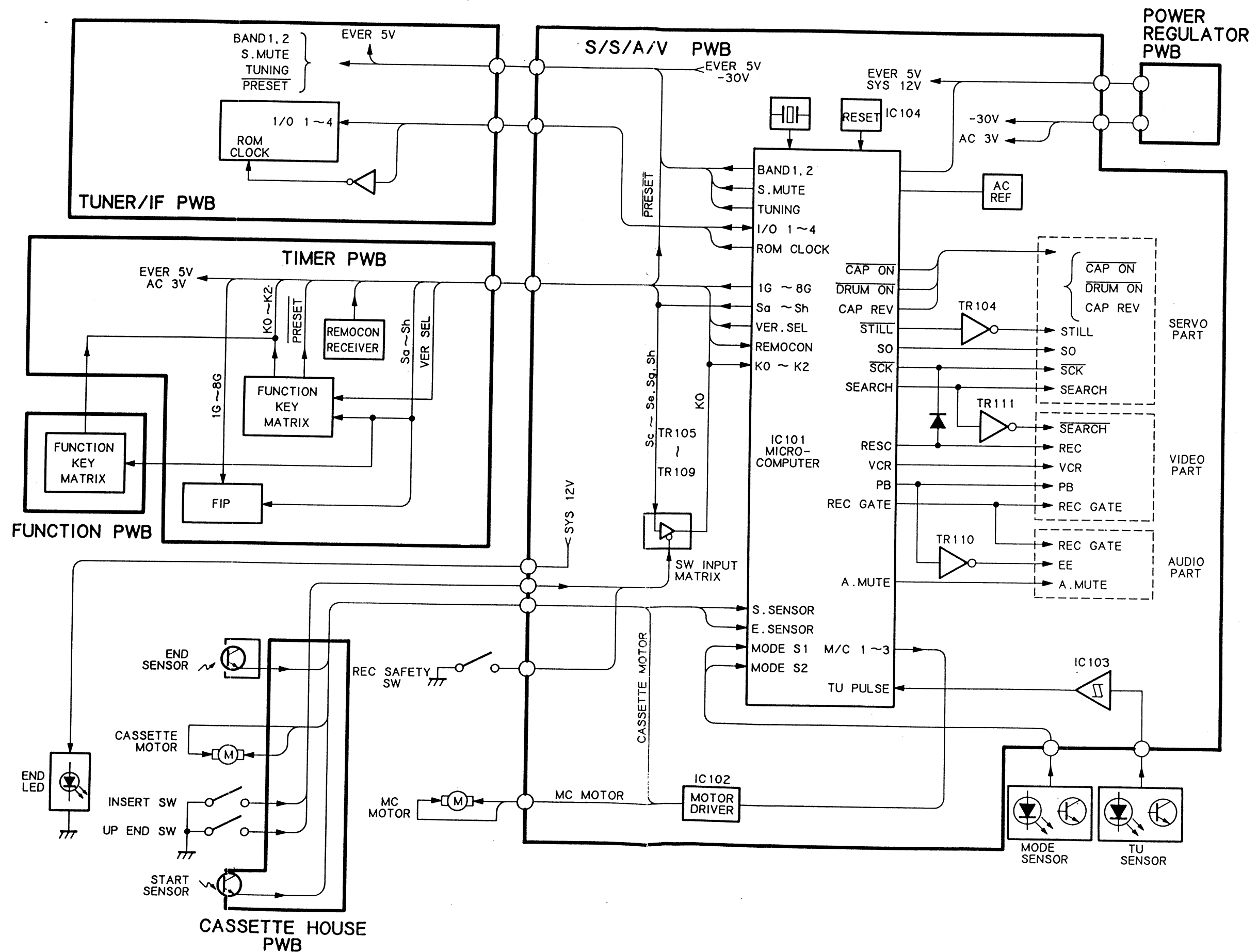
2-3. VIDEO/CHROMA BLOCK DIAGRAM (N9053G/N9055G)



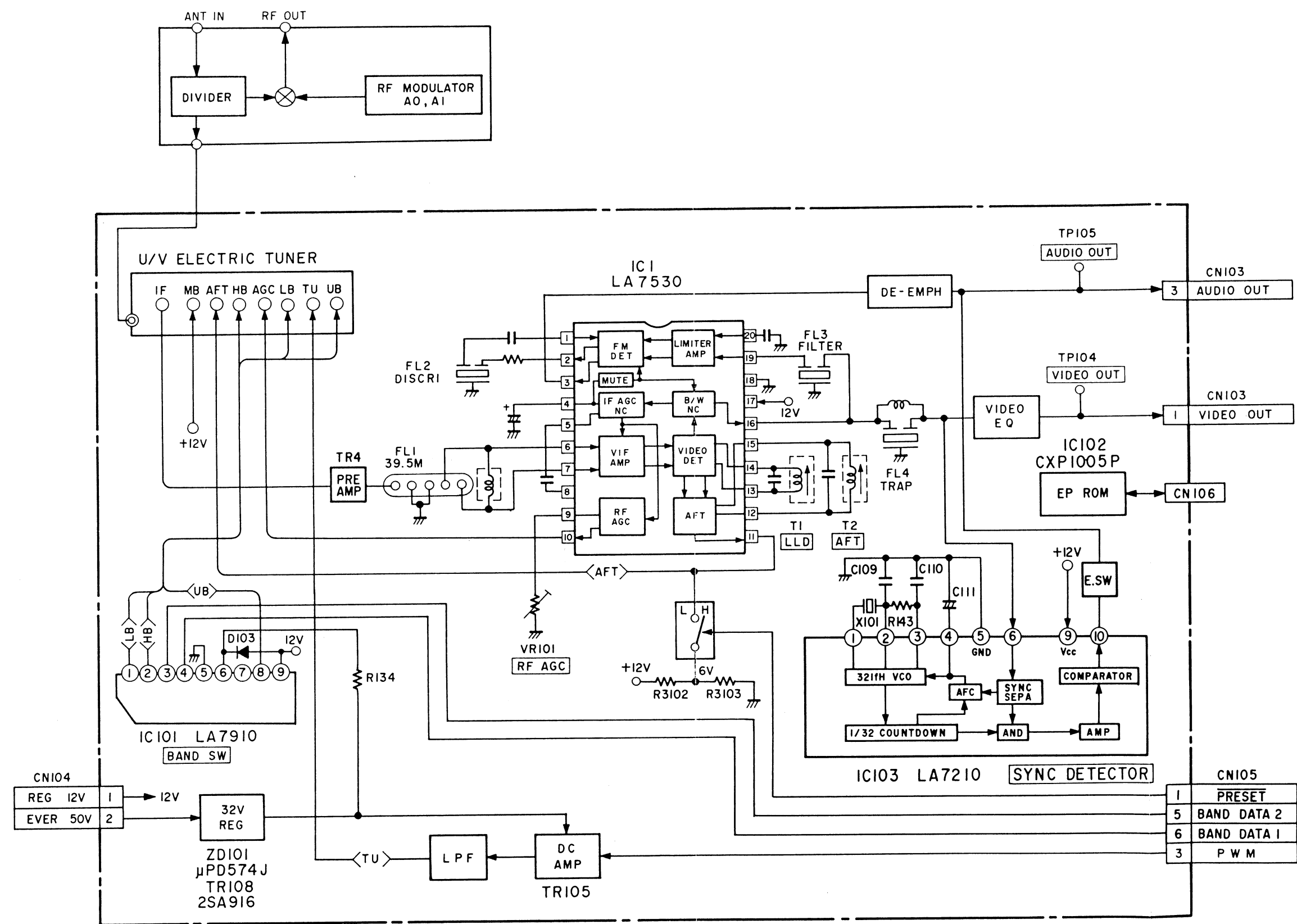
2-4. AUDIO BLOCK DIAGRAM (N9053G)



2-5. TIMER FUNCTION/SUB FUNCTION BLOCK DIAGRAM (N9053G)

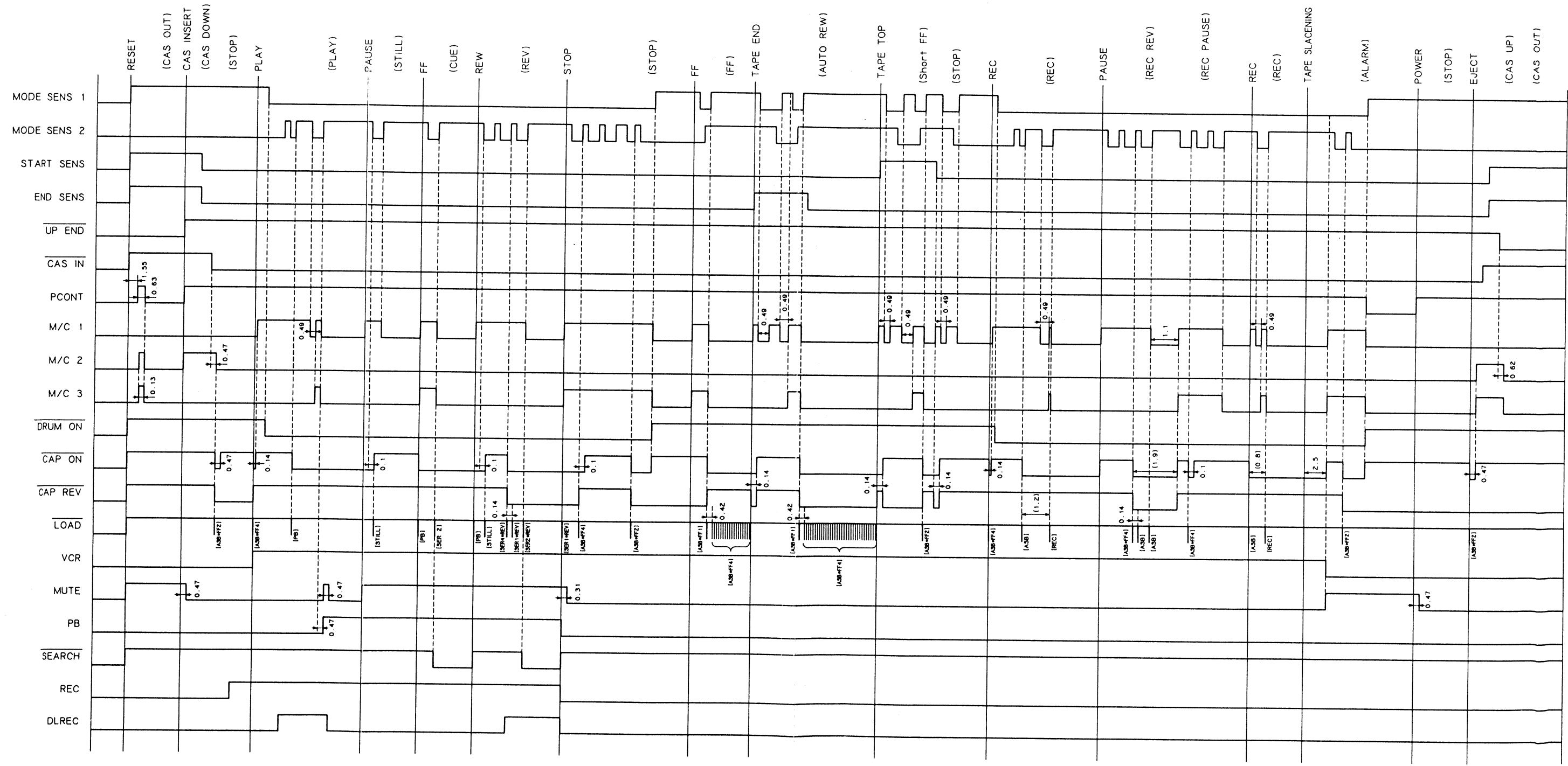


2-6. TUNER/IF BLOCK DIAGRAM (N9053G)

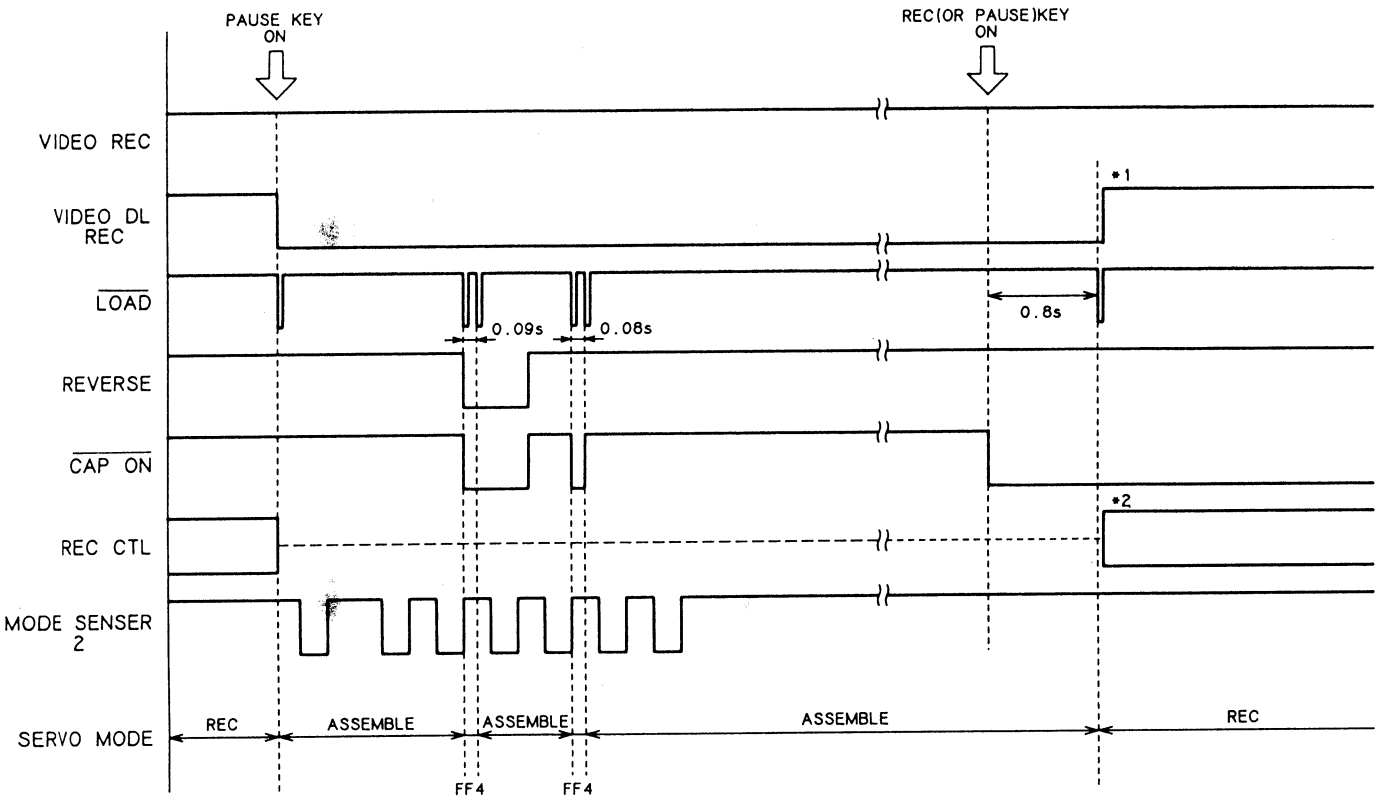


3. TIMING CHART

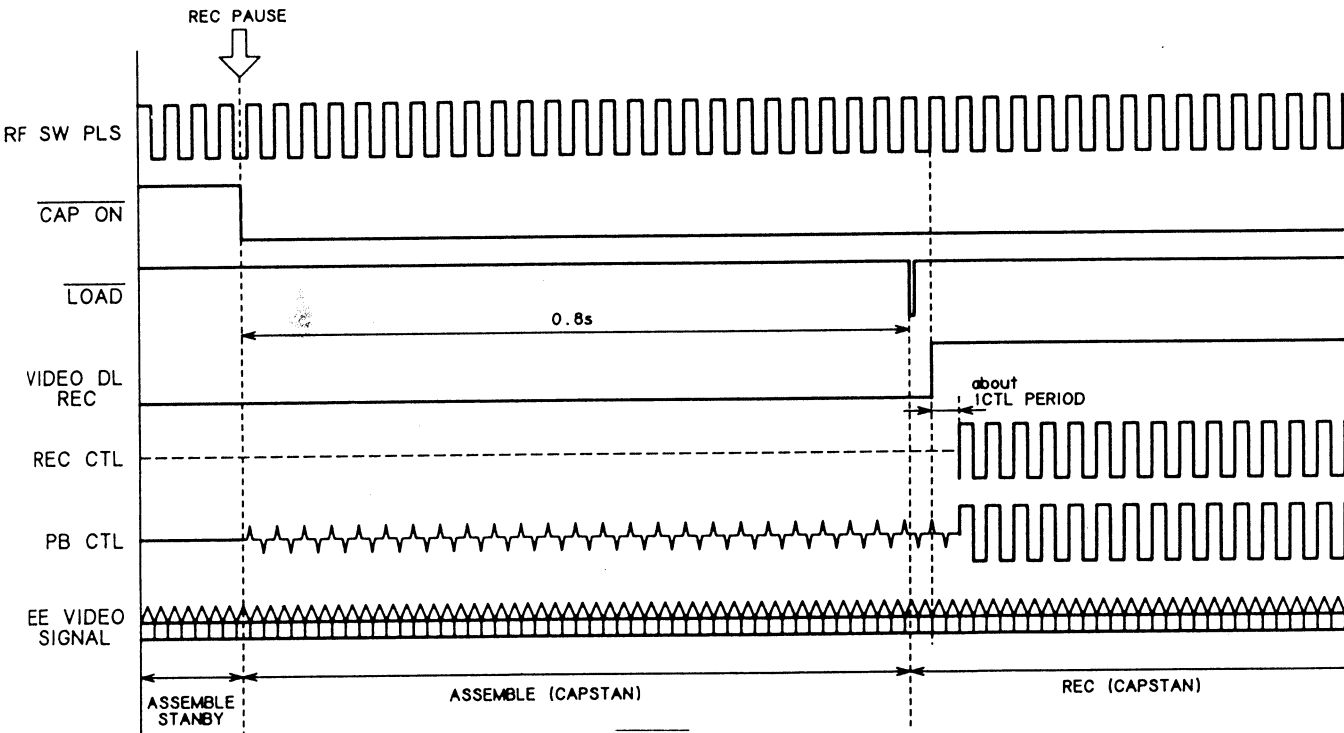
3-1. SYSTEM CONTROL TIMING CHART (N9053G)



3-2. ASSEMBLE RECORD TIMING CHART (N9053G)

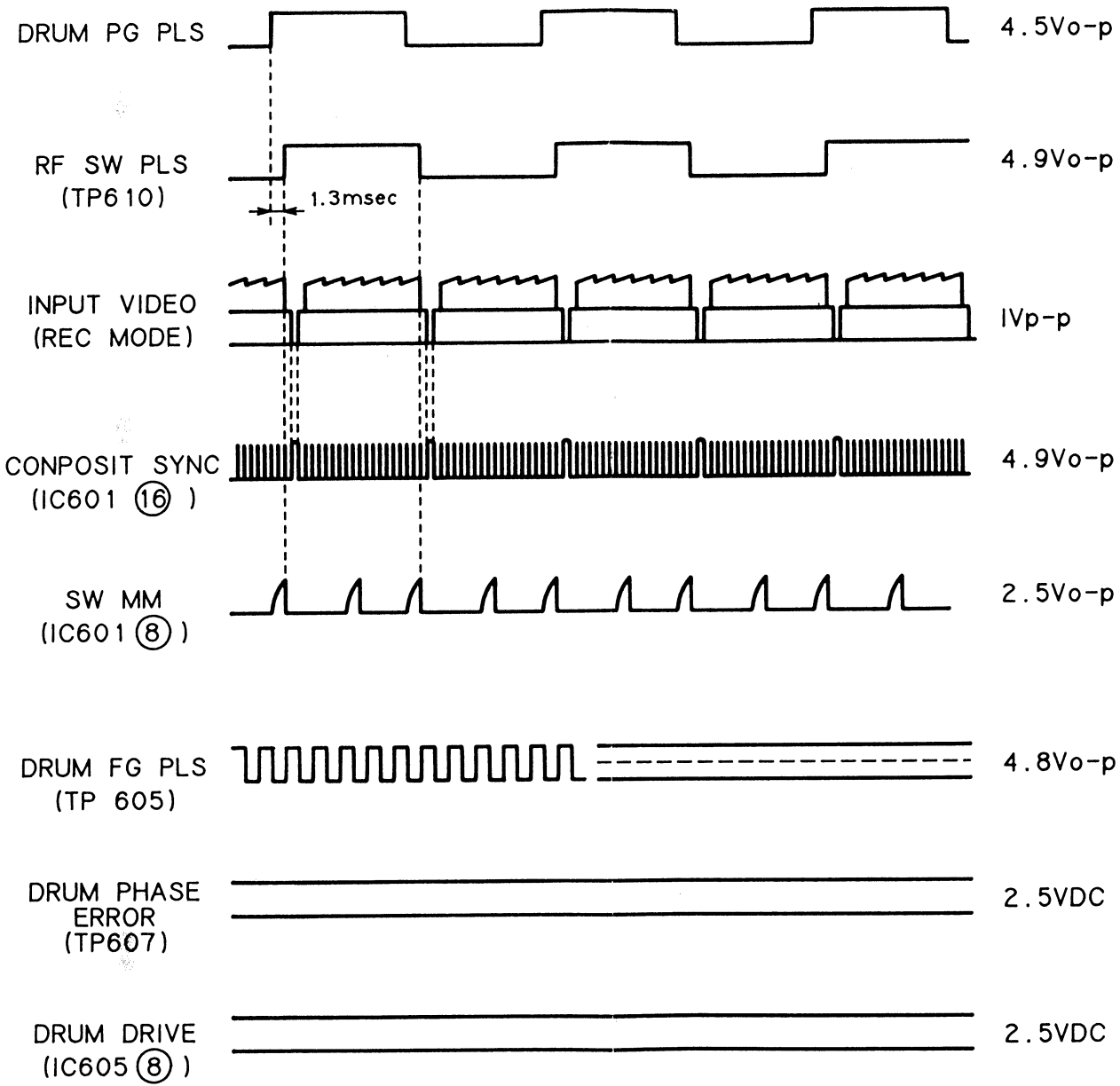


*1, *2 See timing chart No. 2 for the *1 and *2 timings.

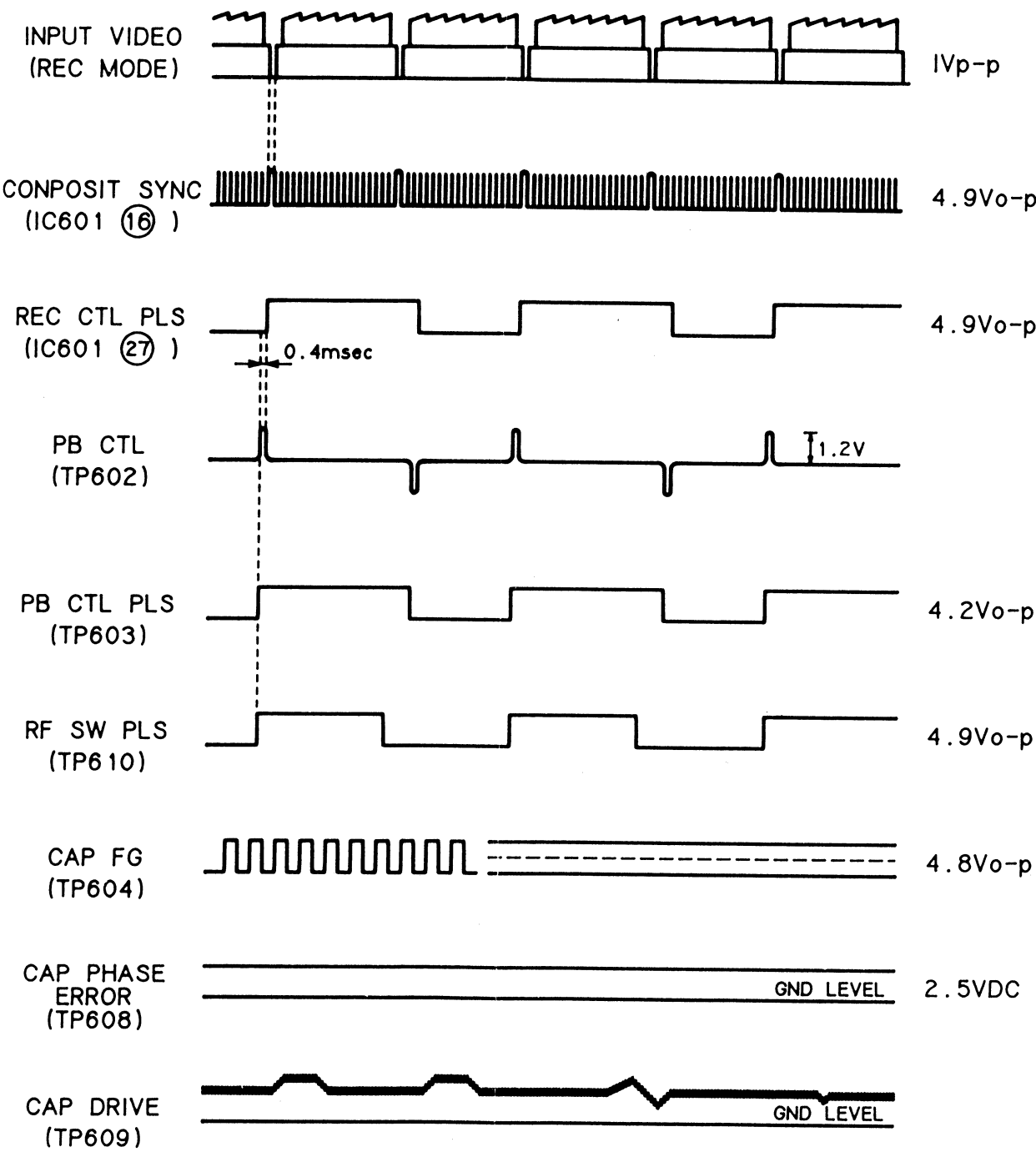


After the REC PULSE is released, CAP ON is set low. Then, the CAPSTAN MOTOR starts rotating and the phase between REC CTL (VSYNC of the VIDEO SIGNAL) and PB CTL is matched.
The connection operation is completed after about 0.8 second (about 24 frames.)
MODE 2 is set high and SERVO enters REC operation state.
The first REC CTL pulse is not recorded. The pulse is recorded from the leading edge of the second CTL pulse.
In addition, DL REC of the VIDEO is output synchronizing with the leading edge of RF SW PLS so that the joint part of VIDEO TRACK can be positioned within the vertical blanking.
DL REC is a control signal for the REC AMP recording current.

3-3. DRUM SERVO TIMING CHART (N9053G)



3-4. CAPSTAN SERVO TIMING CHART (N9053G)

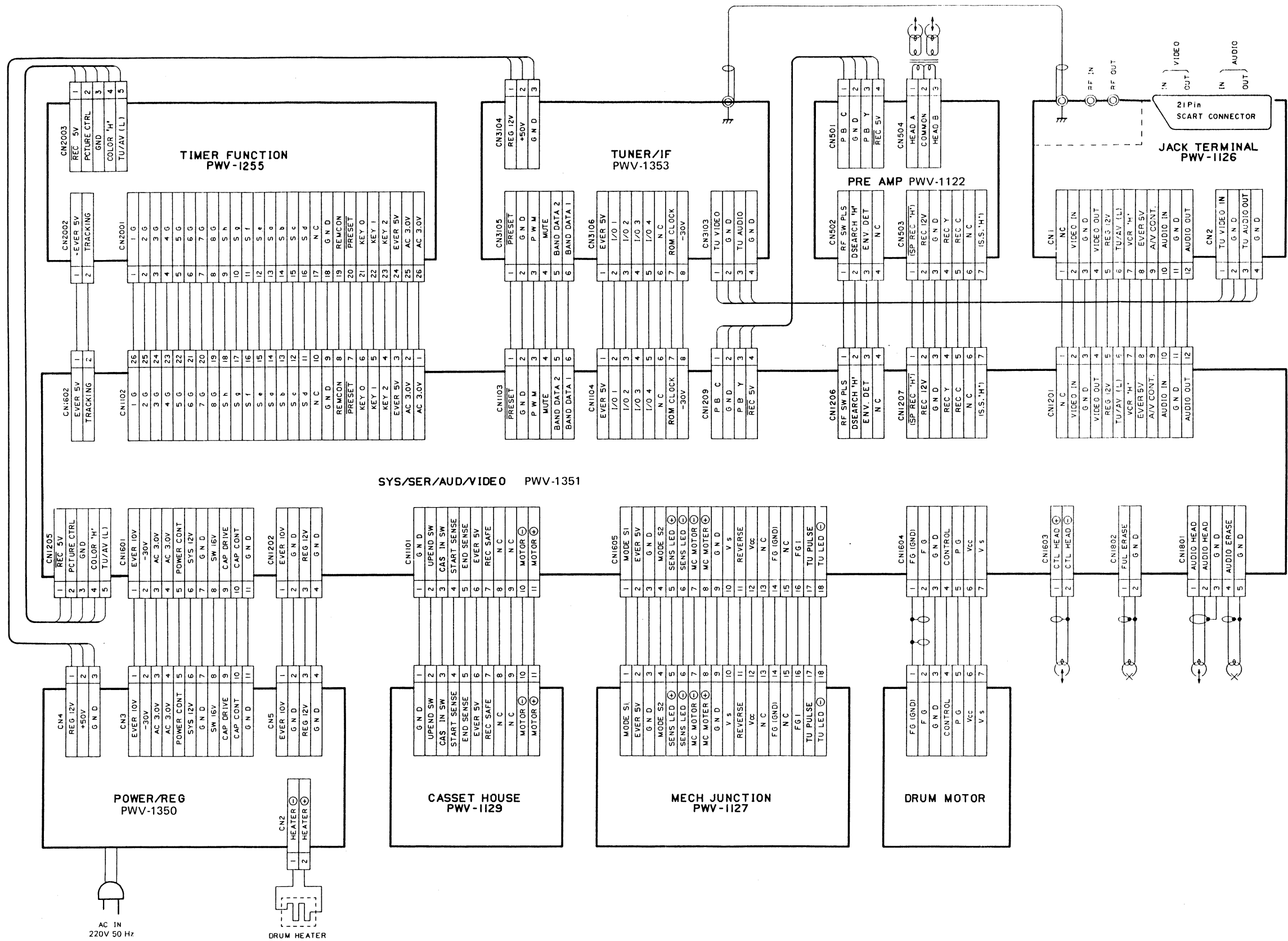


3-5. PARAMETERS (N9053G)

PARAMETER		RF SW PLS Frequency (Hz)	DRUM FG Frequency (Hz)	CAPSTAN FG Frequency (Hz)	CAPSTAN DRIVE Voltage (Volt, DC)
MODE	REC NORMAL P.B.	24.99	499.82	504.6	4.3
	CUE	25.73	514.64	3637	9.3
	REVIEW	24.07	481.34	3401	8.9
	STILL	24.87	497.43	0 (Motor stop)	0

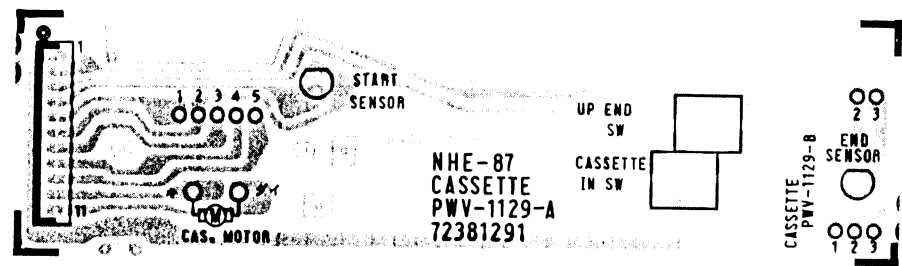
4. SCHEMATIC/CIRCUIT BOARD DIAGRAMS

4-1. FRAME WIRING (N9053G)

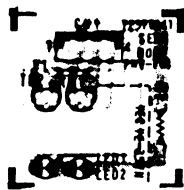


4.2. OTHER MINI-CIRCUIT BOARDS (N9053G/N9055G)

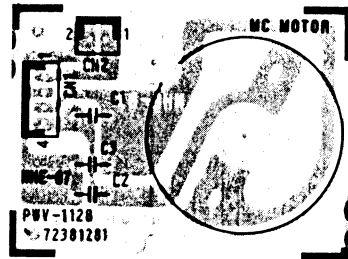
• CASSETTE CIRCUIT BOARD



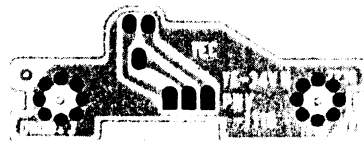
• MODE SENSOR CIRCUIT BOARD



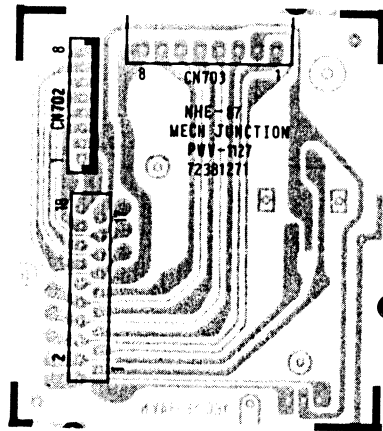
• MC CONTROL CIRCUIT BOARD



• DRUM JUNCTION CIRCUIT BOARD



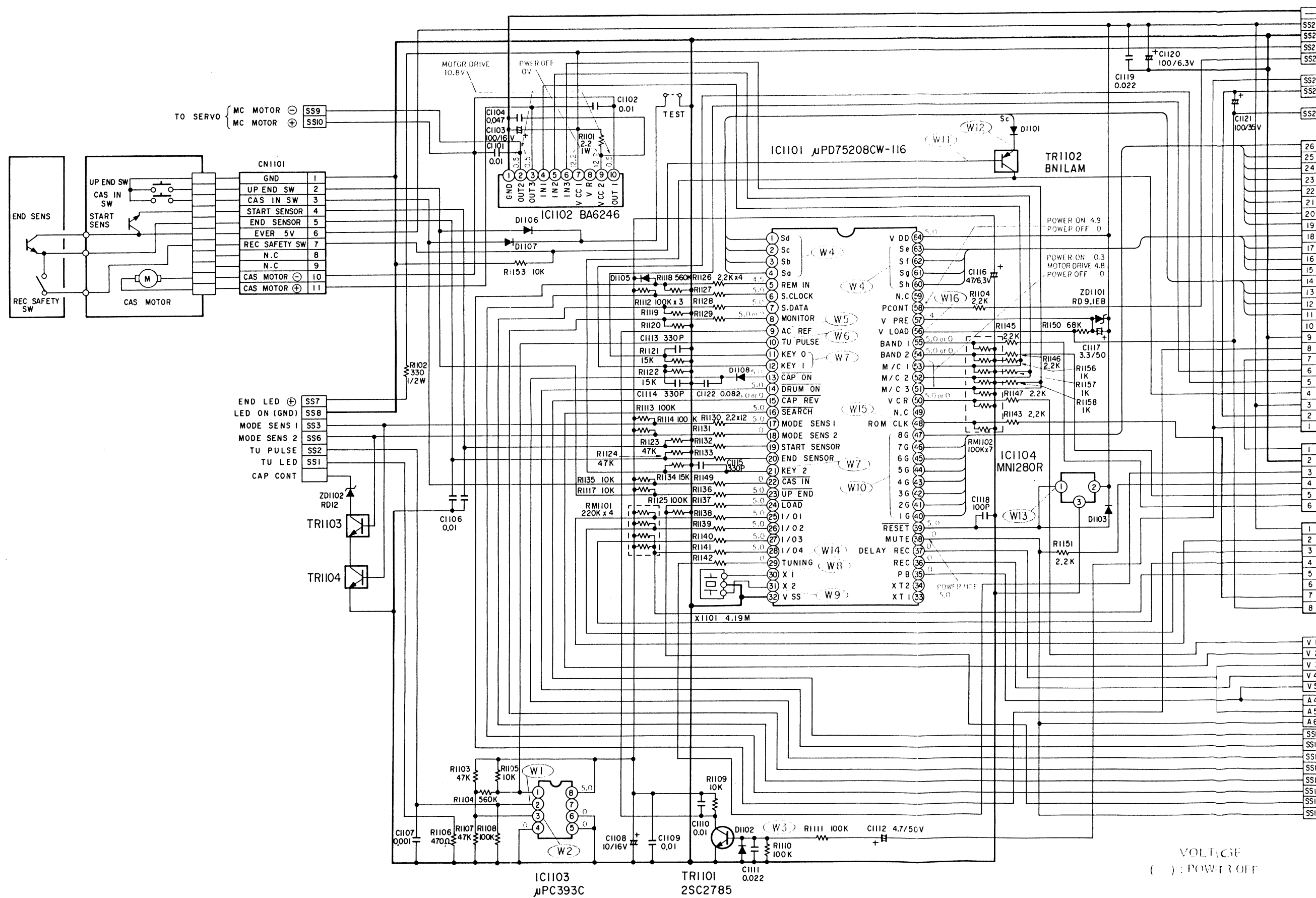
• MECHA JUNCTION CIRCUIT BOARD

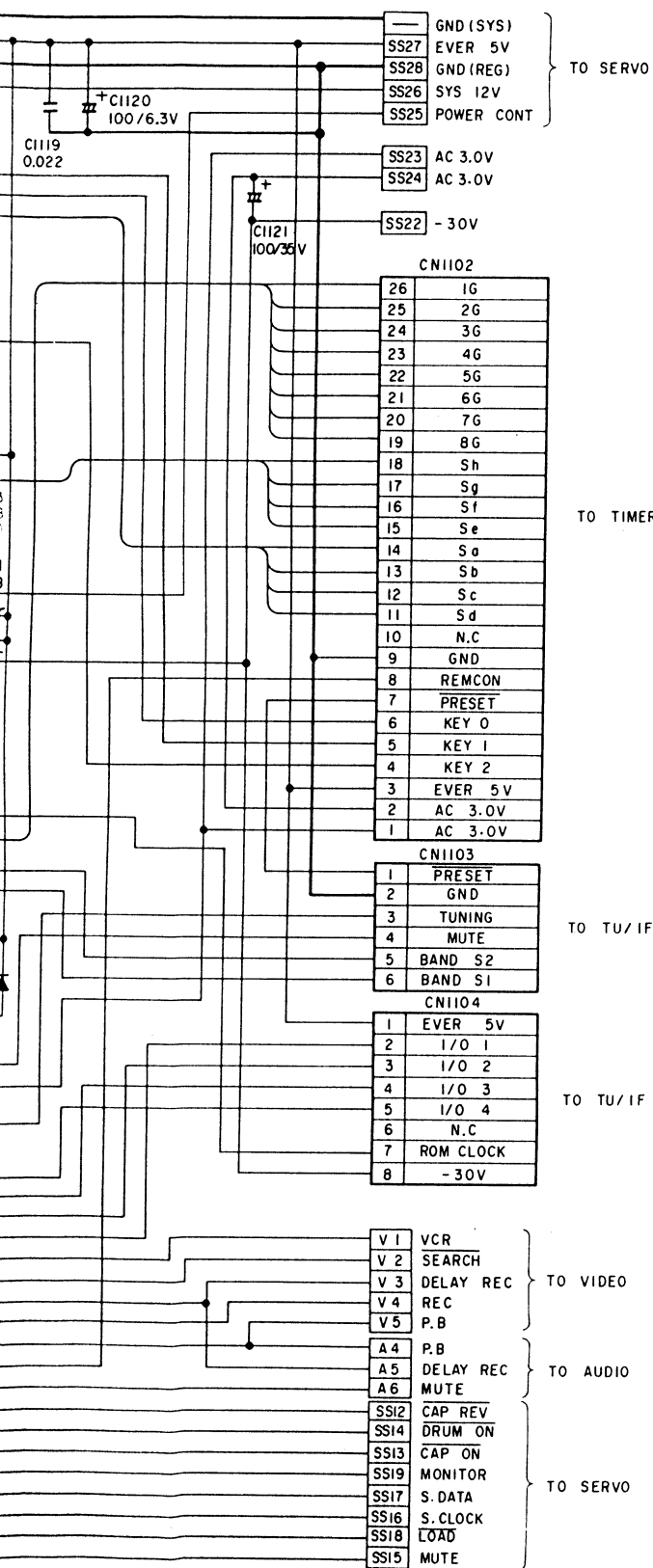


DIGITAL TRANSISTOR INFORMATION

SYMBOL	FIGURE
BA1L4M	
BN1L4M	
BA1F4M	
BN1F4M	
BN1A4M AN1A4M	
BA1A4M AA1A4M	
UN4122	
BB1A3Z	

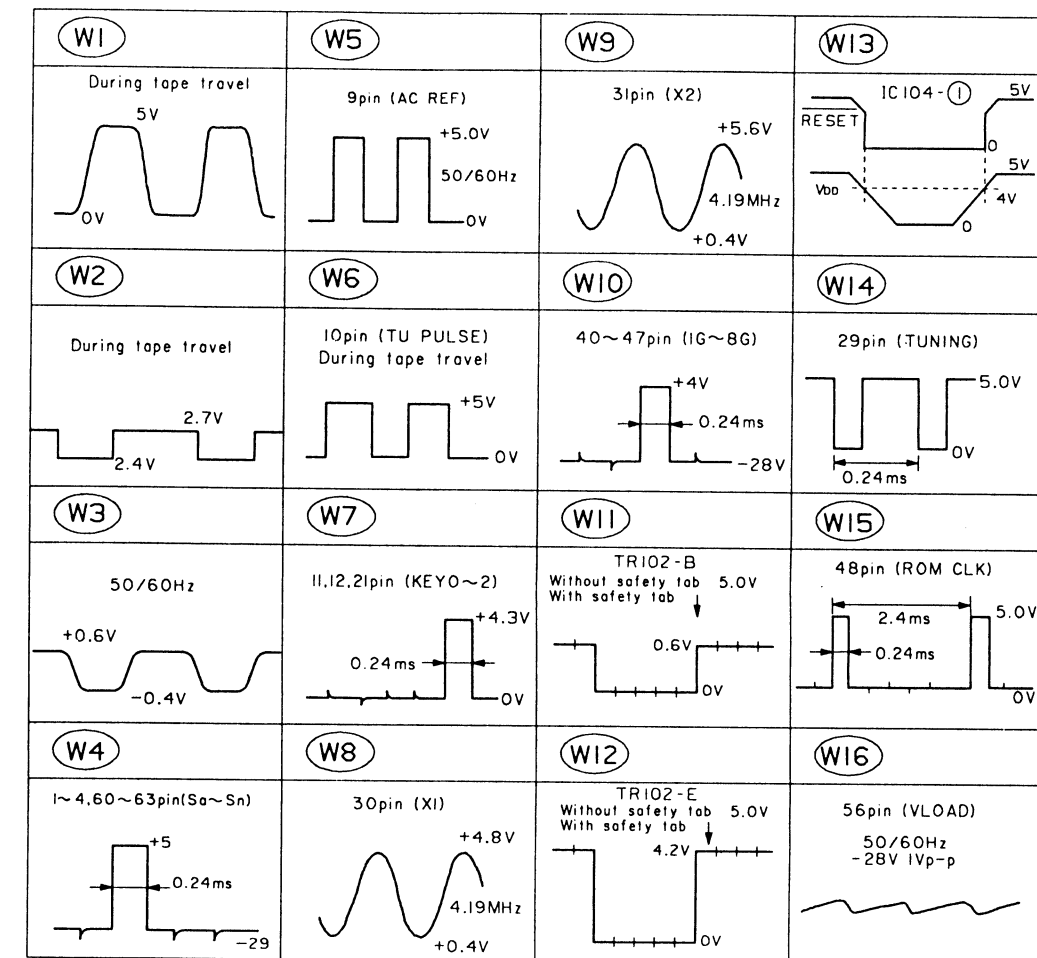
4-3. SYSCON SCHEMATIC DIAGRAM (N9053G)



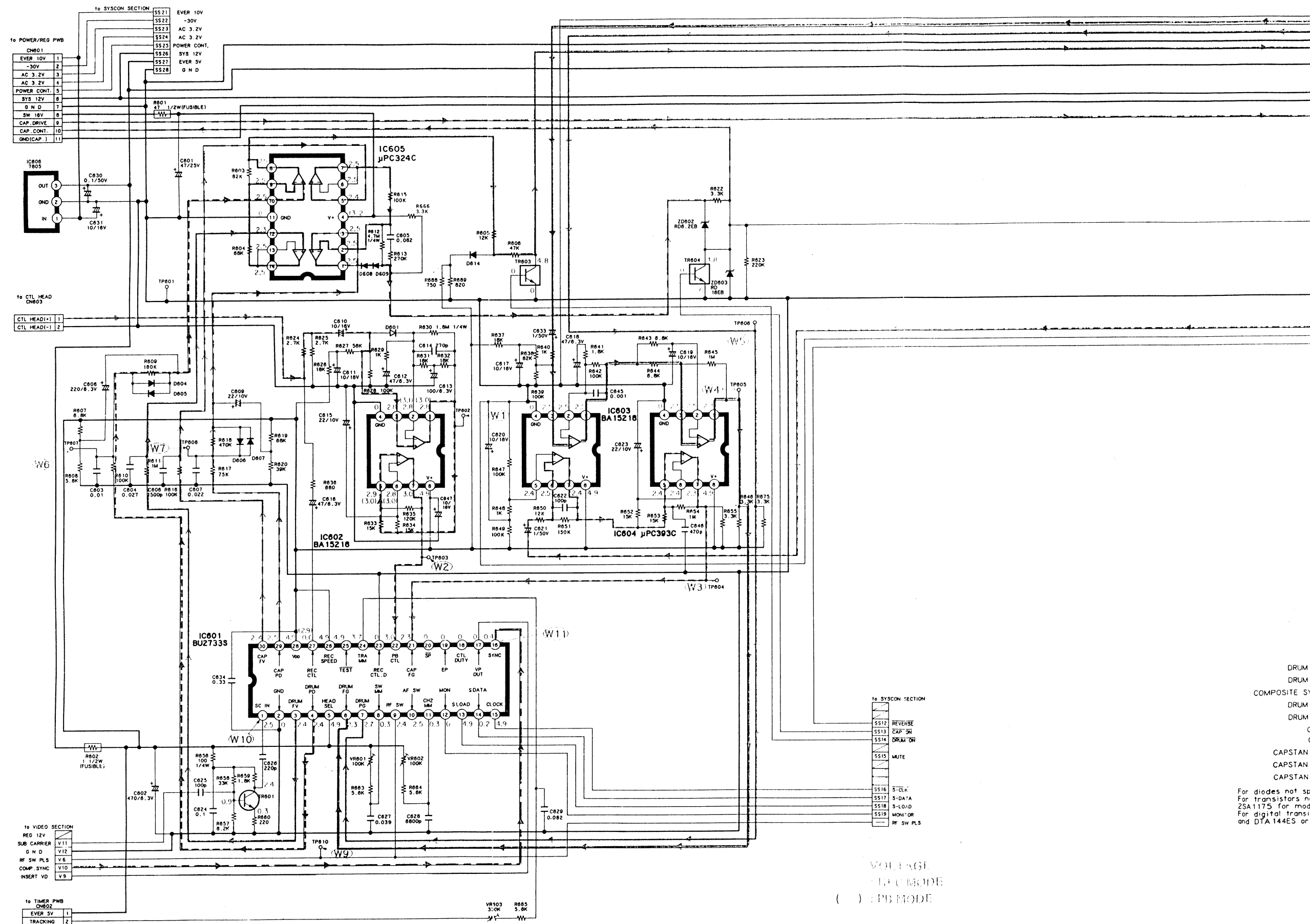


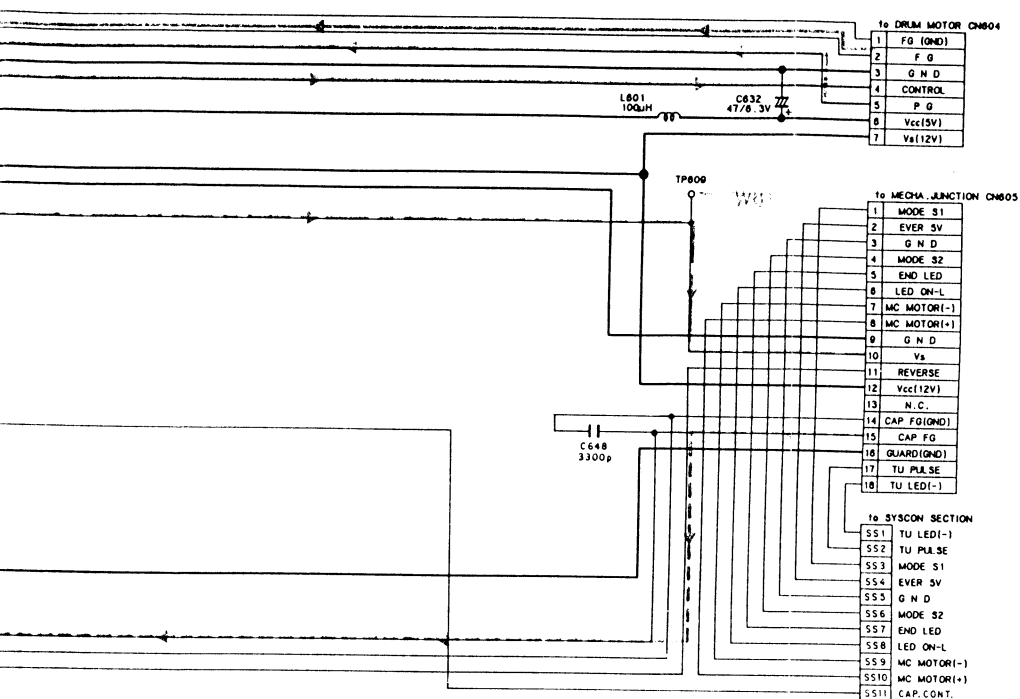
VOLTAGE
() POWER OFF

SYSCON WAVEFORMS



4-4. SERVO SCHEMATIC DIAGRAM (N9053G)





TP LIST

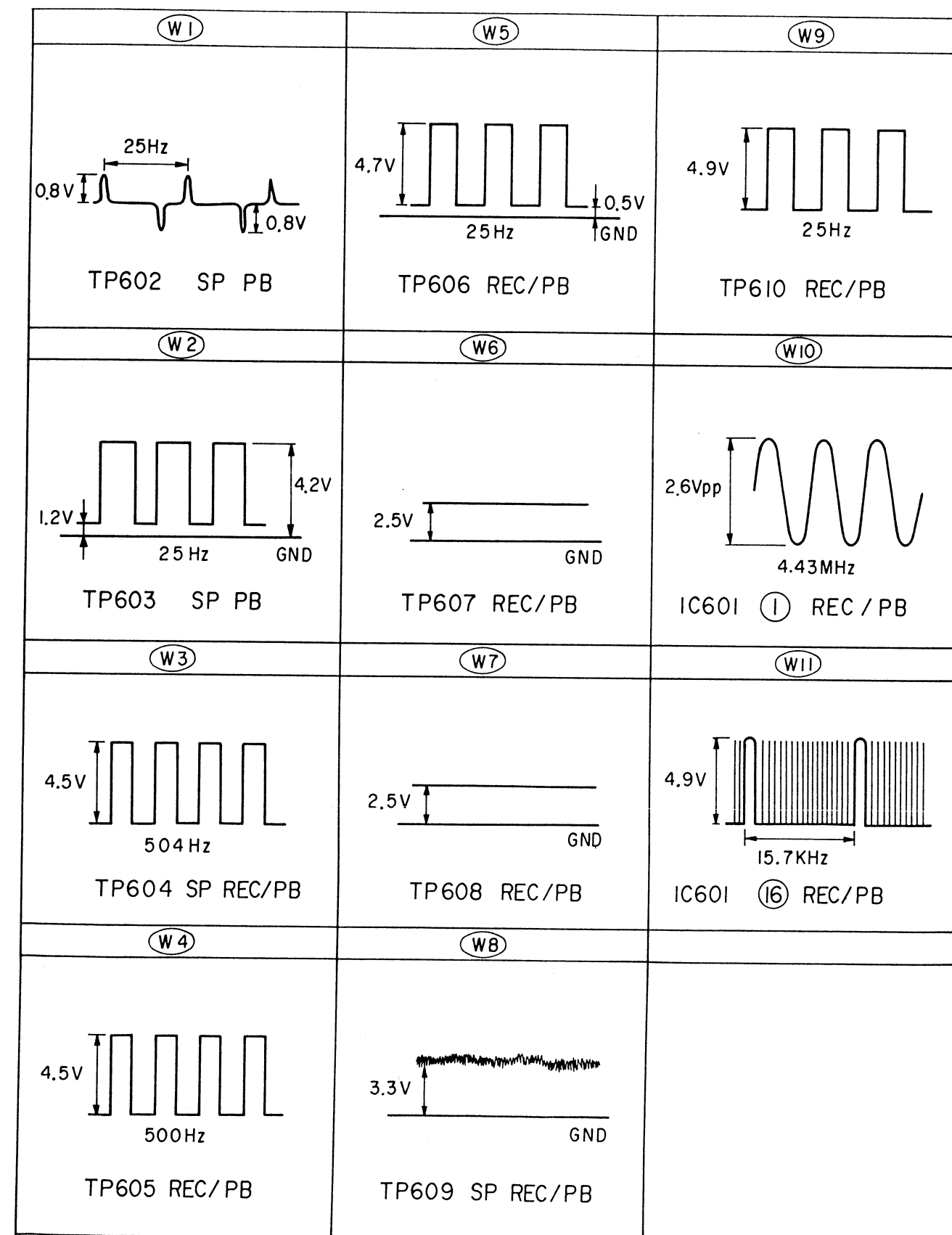
NO.	ITEM
801	G N D
802	PB CTL(ILIN.1)
803	PB CTL PLS
804	CAP FG PLS
805	DRUM FG PLS
806	DRUM PG PLS
807	DRUM PHASE ERROR
808	CAP. PHASE ERROR
809	CAP. DRIVE VOLTAGE
810	RF SW PLS

DRUM SERVO SIGNAL
 DRUM PG ----- PHASE COMPARISON SIGNAL
 DRUM FG ----- SPEED COMPARISON SIGNAL
 COMPOSITE SYNC ----- PHASE BASE SIGNAL (REC)
 DRUM PD ----- PHASE ERROR SIGNAL
 DRUM FV ----- SPEED ERROR SIGNAL
 CAPSTAN SERVO SIGNAL
 CTL ----- PHASE COMPARISON SIGNAL (PB)
 CAPSTAN FG ----- SPEED COMPARISON SIGNAL
 CAPSTAN PD ----- PHASE ERROR SIGNAL
 CAPSTAN FV ----- SPEED ERROR SIGNAL

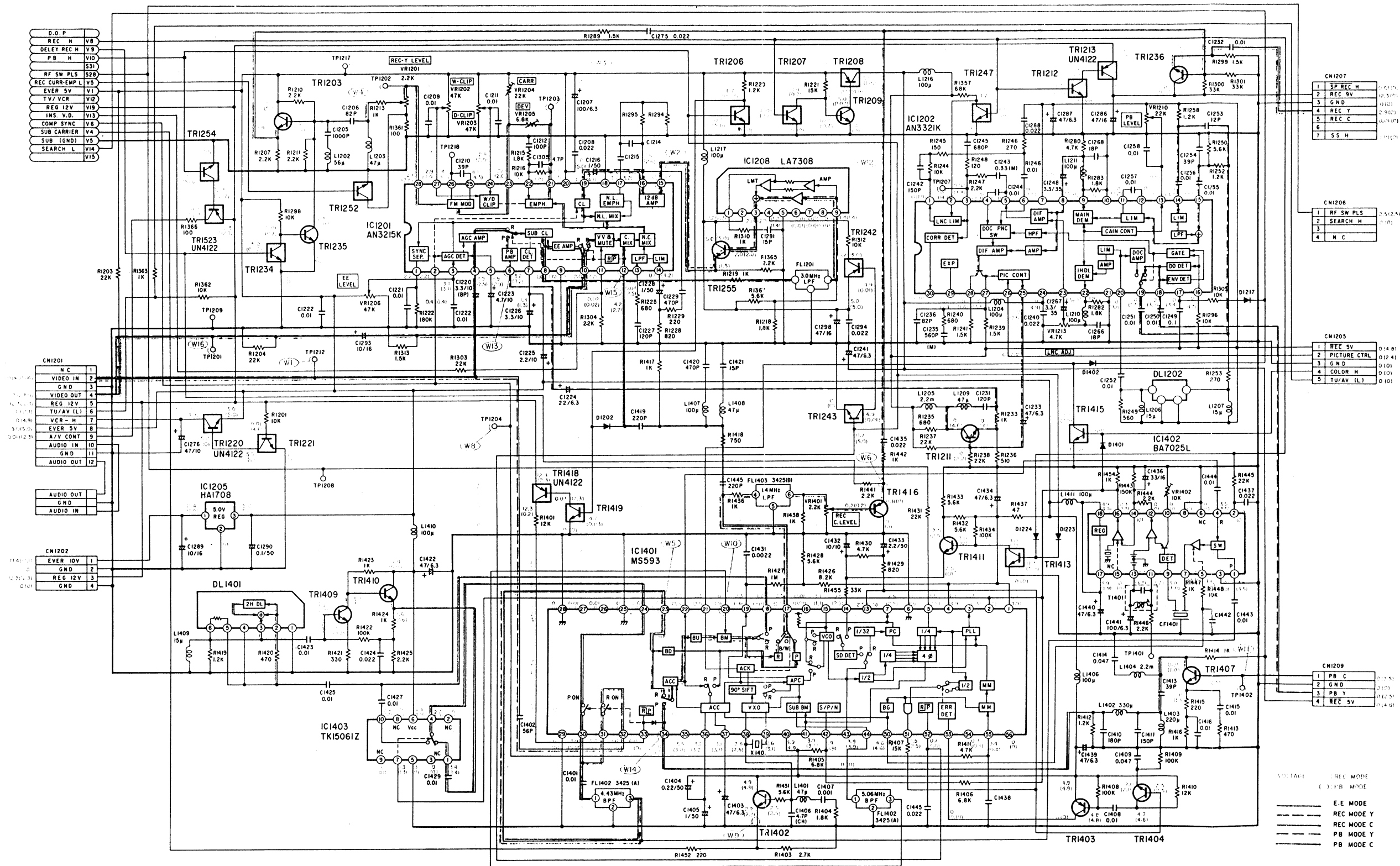
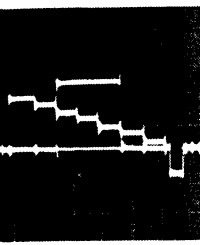
For diodes not specified use 1SS133 or 1S2473.
 For transistors not specified use 2SC2785 for model NPN and 2SA1175 for model PNP.
 For digital transistors not specified use DTC144ES or equivalent for model NPN and DTA144ES or equivalent for model PNP.

NO.	ITEM
801	PG DL
802	INS VD PHASE
803	TRACKING SUB

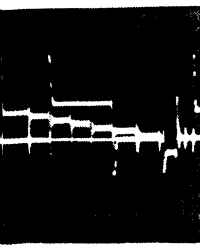
SERVO WAVEFORMS



VIDEO WAVEFORM

TP1212 REC
INPUT SIGNAL

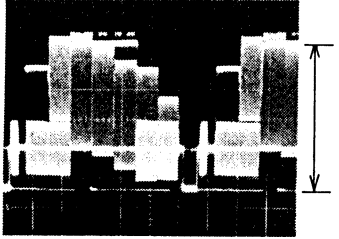
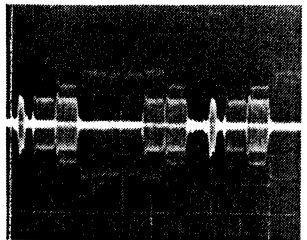
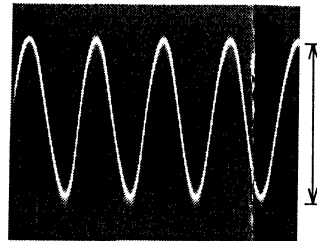
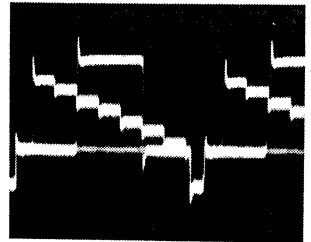
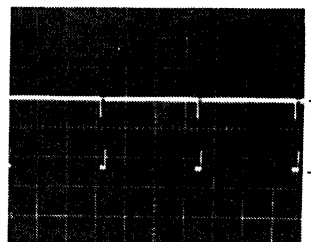
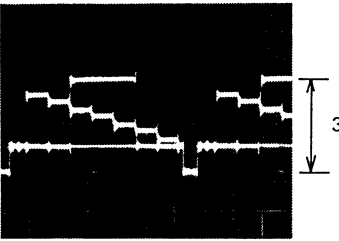
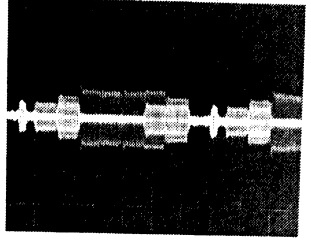
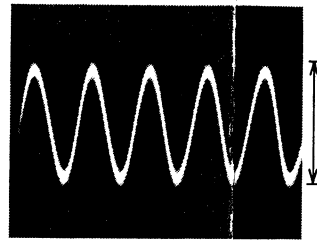
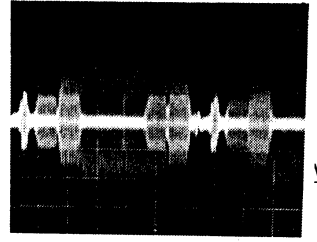
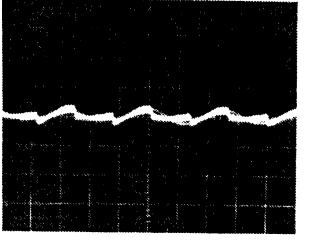
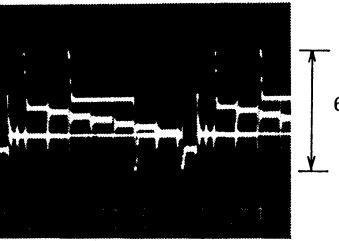
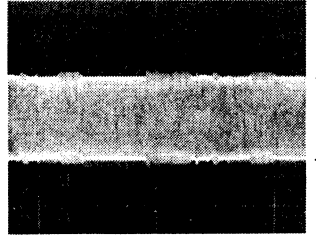
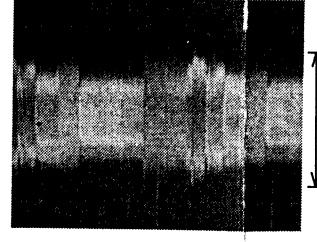
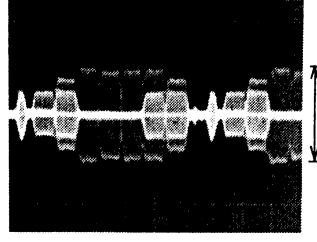
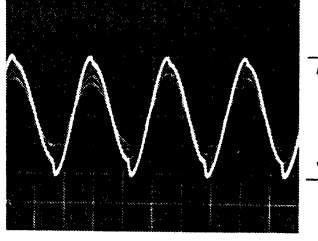
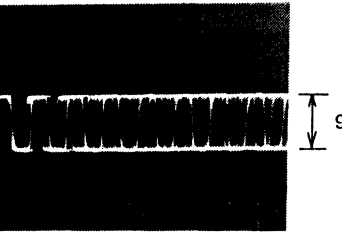
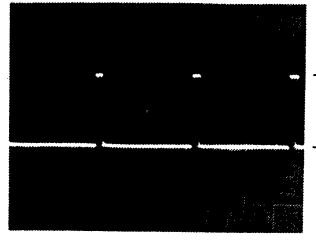
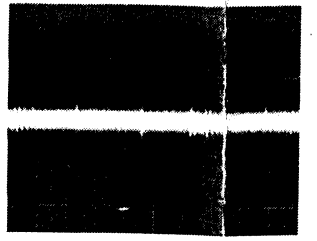
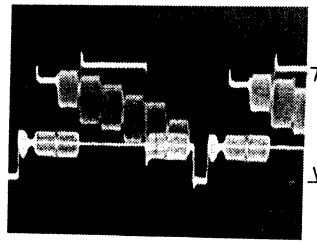
IC1201 15 pin RE
LUMINANCE SIGN



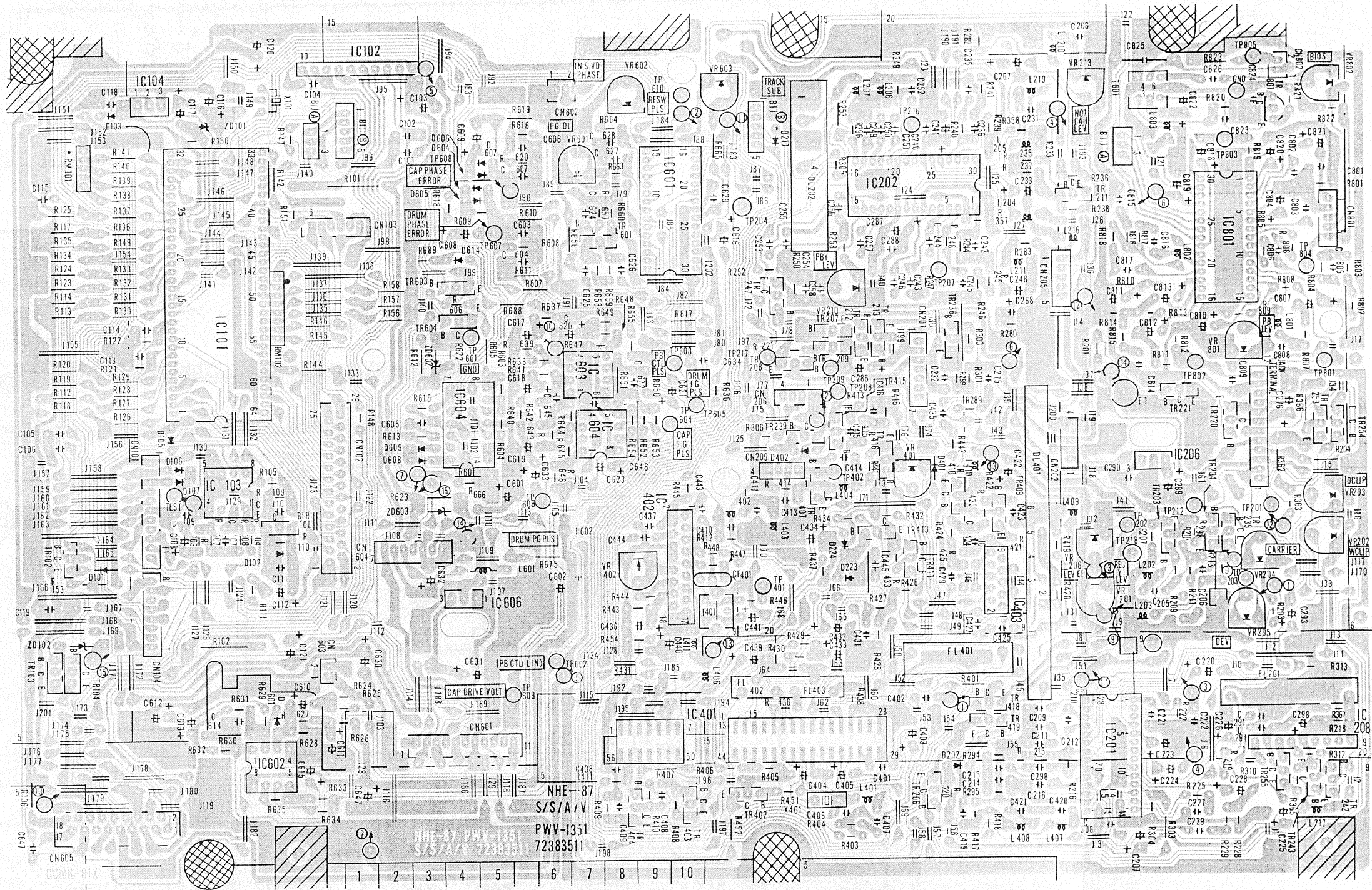
TP1203 REC
RE EMPHASIS OUT

TP1201 REC
FM MODULATOR OU

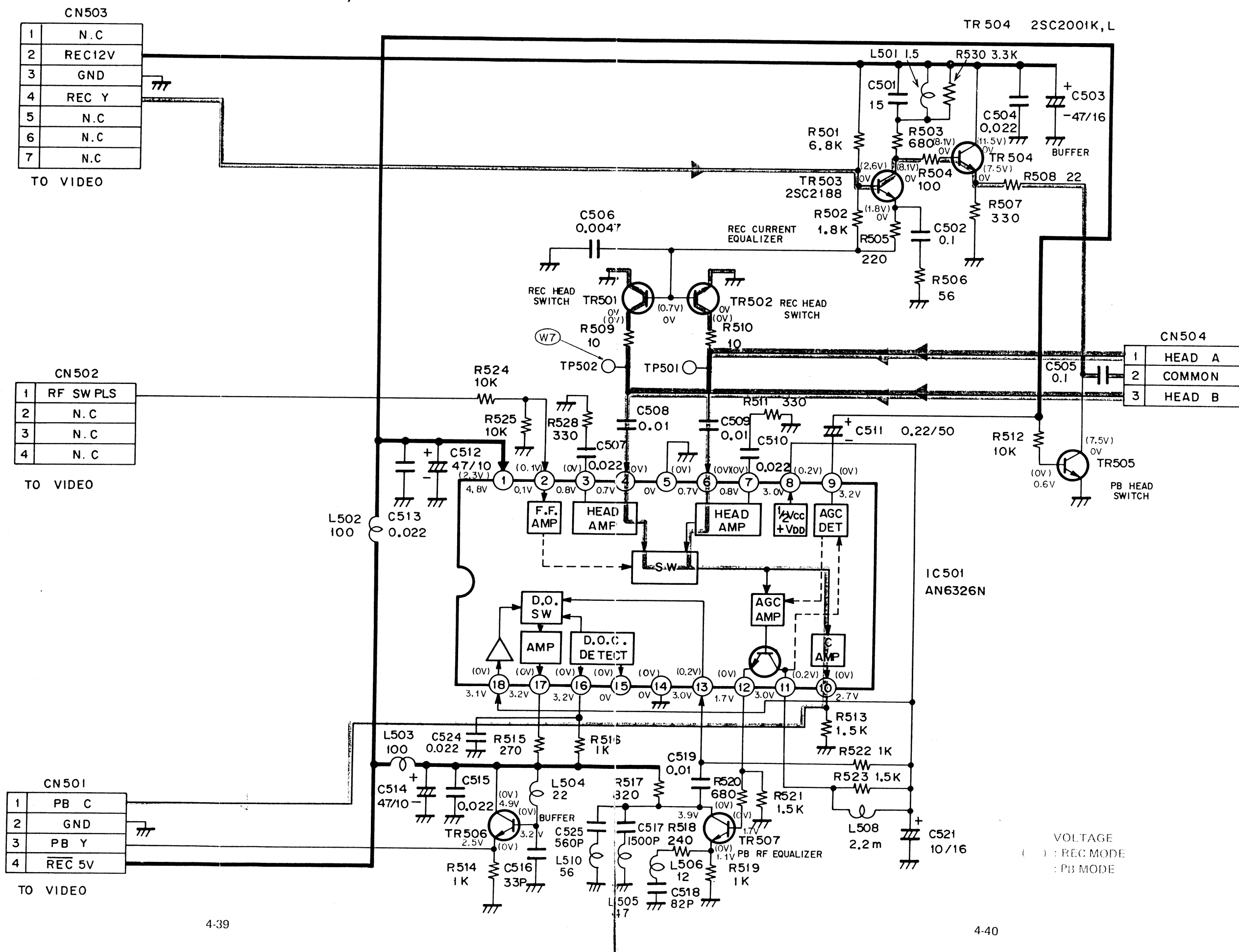
VIDEO WAVEFORMS

W1  TP1212 REC INPUT SIGNAL X = 10μs Y = 200mV	W5  IC1401 25 pin REC CHROMINANCE SIGNAL X = 10μs Y = 50mV	W9  TR1402 Emitter REC 4.43 MHz VXO OUTPUT X = 100ns Y = 100mV	W13  IC1201 6 pin PB PB LUMINANCE SIGNAL X = 10μs Y = 50mV	W17  IC1401 55 pin REC BURST GATE PULSE X = 20μs/DIV. Y = 2V/DIV.
W2  IC1201 15 pin REC LUMINANCE SIGNAL X = 10μs Y = 100mV	W6  TR1416 Emitter REC REC CONVERTED CHROMINANCE SIGNAL X = 10μs Y = 50mV	W10  IC1401 20 pin REC 5.06 MHz MAIN CONVERTER INPUT X = 100ns Y = 50mV	W14  IC1401 34 pin PB PB CONVERTED CHROMINANCE SIGNAL X = 10μs Y = 50mV	W18  TP1401 REC (PAL) SECAM DETECTOR X = 50μs/DIV. Y = 1V/DIV.
W3  TP1203 REC PRE EMPHASIS OUTPUT X = 10μs Y = 200mV	W7  TP501 (PRE AMP) REC REC FM SIGNAL X = 10μs Y = 50mV	W11  TP1402 PB PB FM SIGNAL X = 10μs Y = 50mV	W15  IC1201 12 pin PB PB CHROMINANCE SIGNAL X = 10μs Y = 100mV	W19  TP1401 REC (SECAM) SECAM DETECTOR X = 50μs/DIV. Y = 1V/DIV.
W4  TP1201 REC FM MODULATOR OUTPUT X = 200ns Y = 500mV	W8  TP1204 REC COMPOSITE SYNC PULSE X = 20μs Y = 2V	W12  TP1207 PB LINE NOISE CANCELAR CHECK POINT X = 10μs Y = 50mV	W16  TP1201 PB PB VIDEO SIGNAL X = 10μs Y = 500mV	

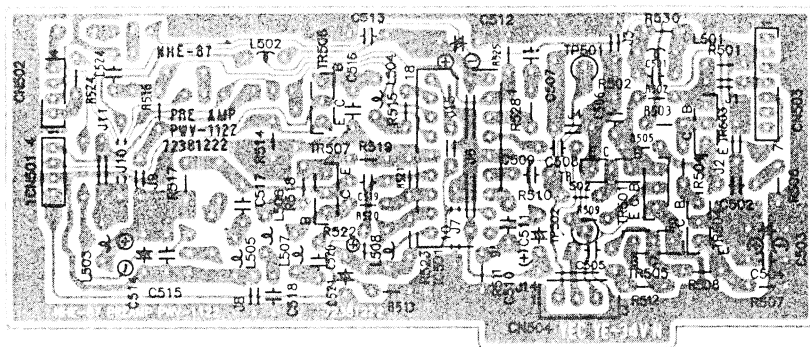
4-6. SYSCON/SERVO/AUDIO/VIDEO CIRCUIT BOARD (SOLDER SIDE) (N9053G)



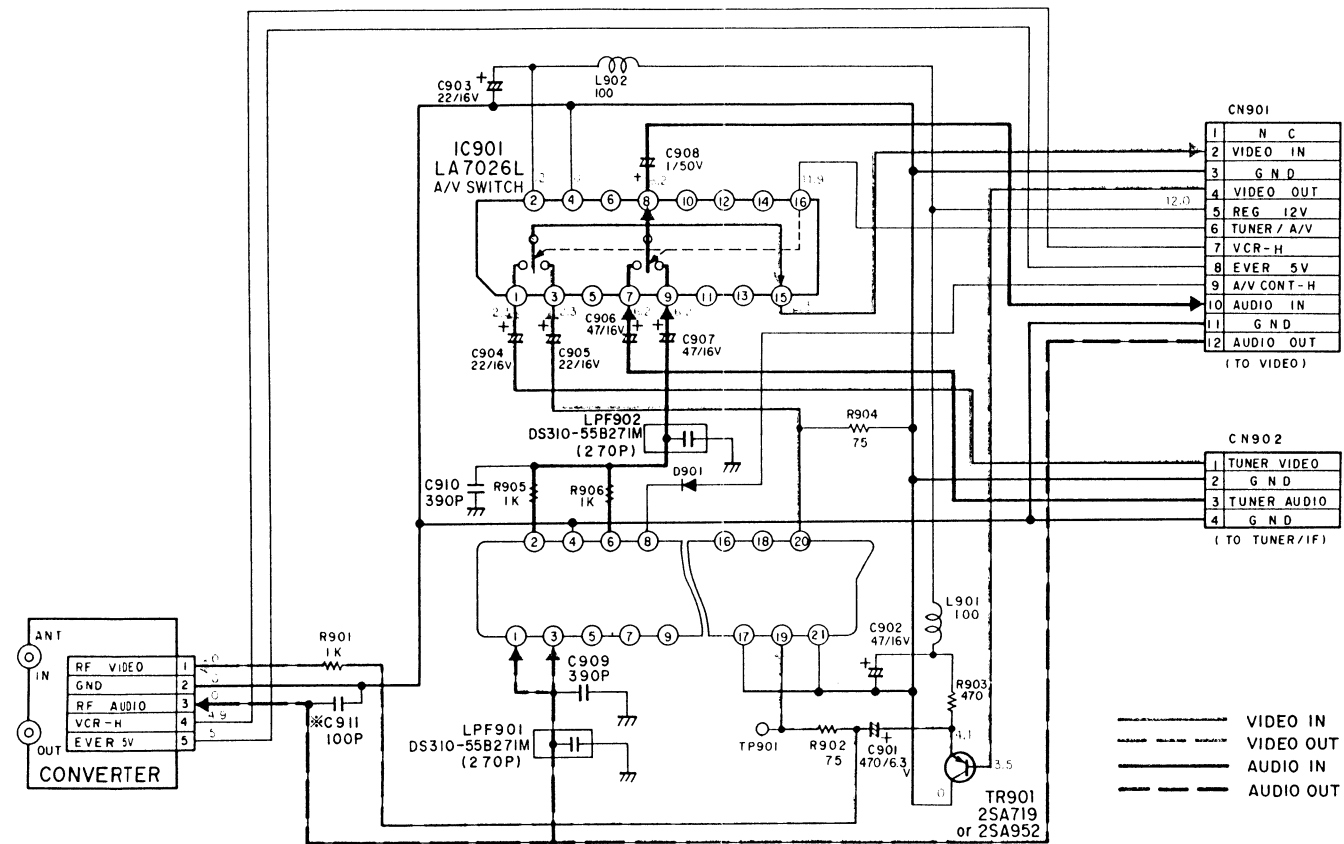
4-7. PRE AMP SCHEMATIC DIAGRAM (N9053G/N9055G)



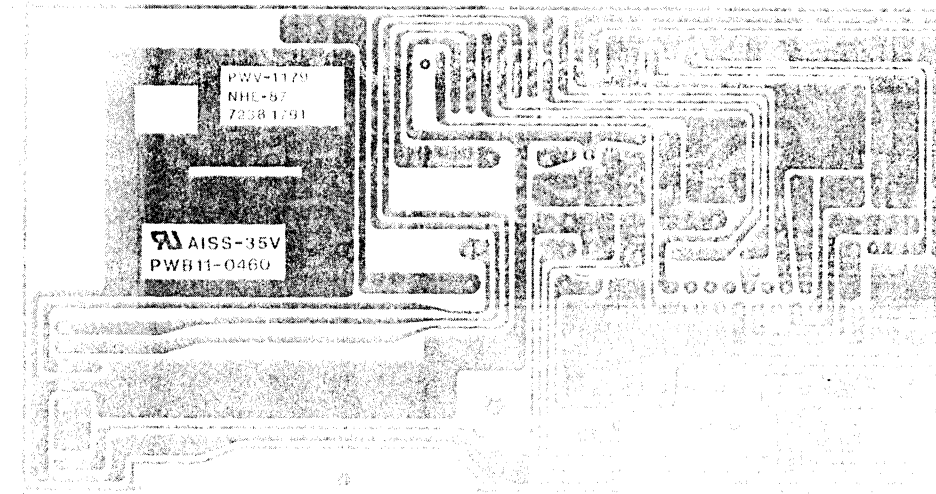
4-8. PRE AMP CIRCUIT BOARD (SOLDER SIDE) (N9053G/N9055G)



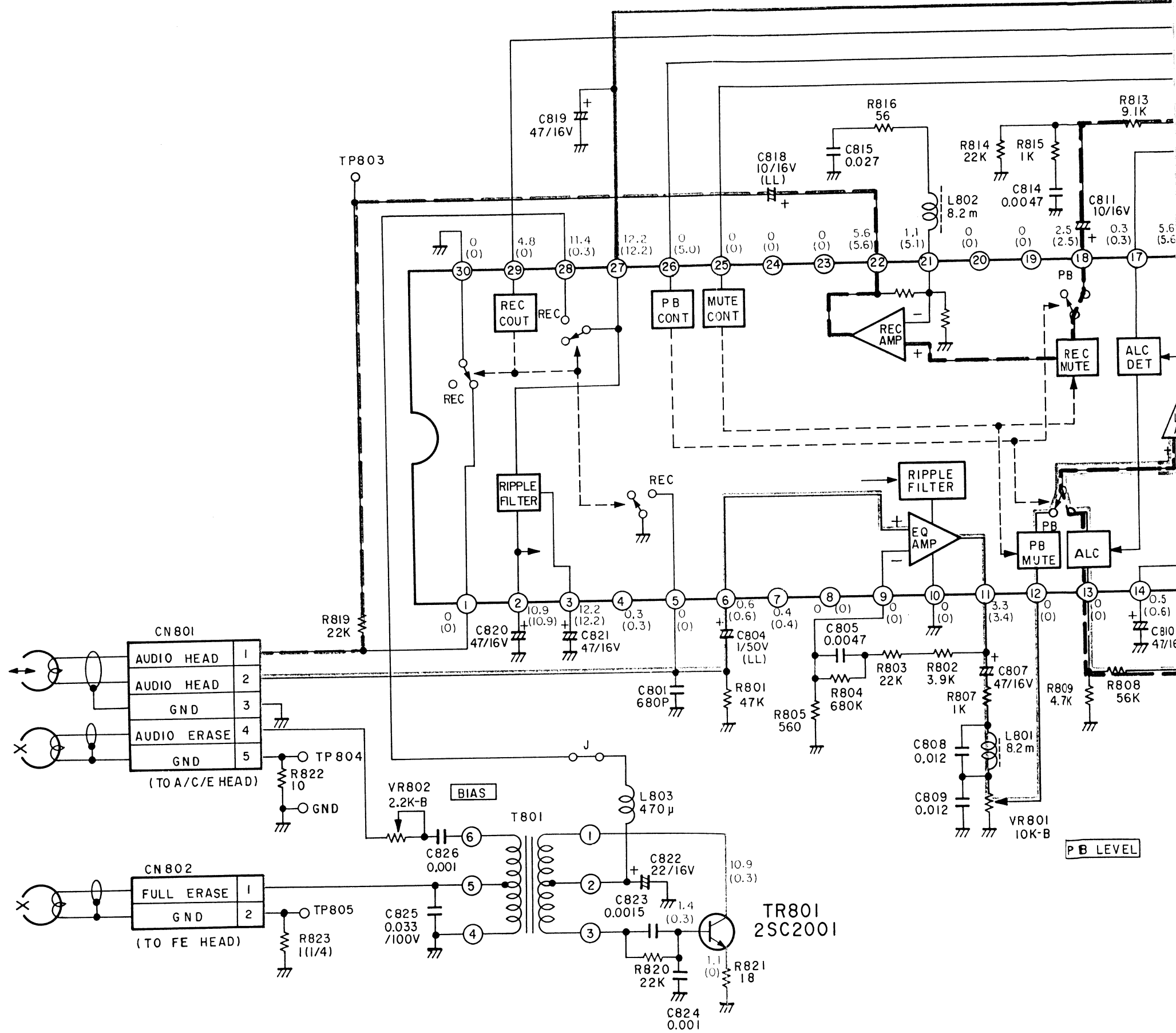
4.9. JACK TERMINAL SCHEMATIC DIAGRAM (N9053G/N9055G)

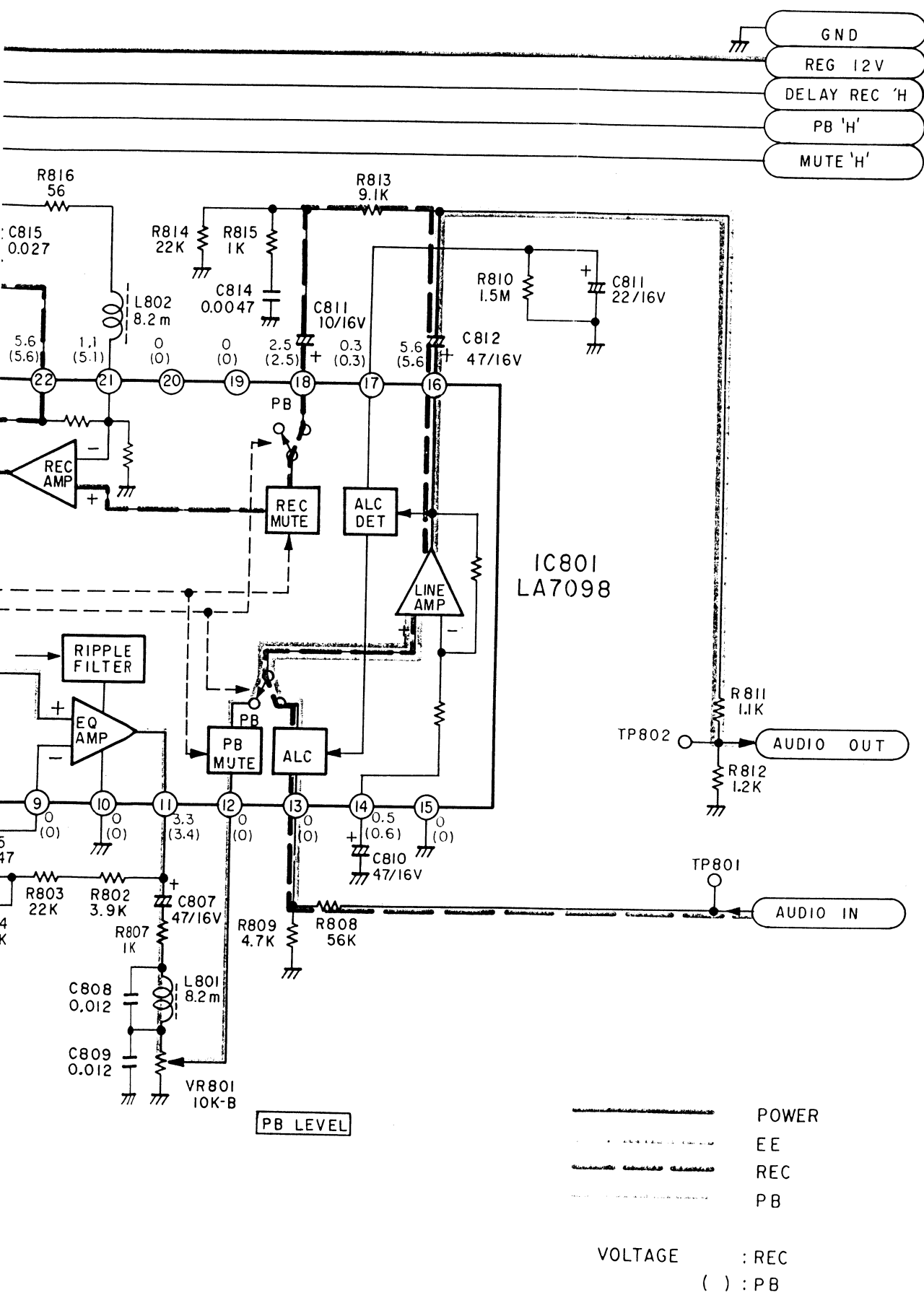


4-10. JACK TERMINAL CIRCUIT BOARD (N9053G/N9055G)

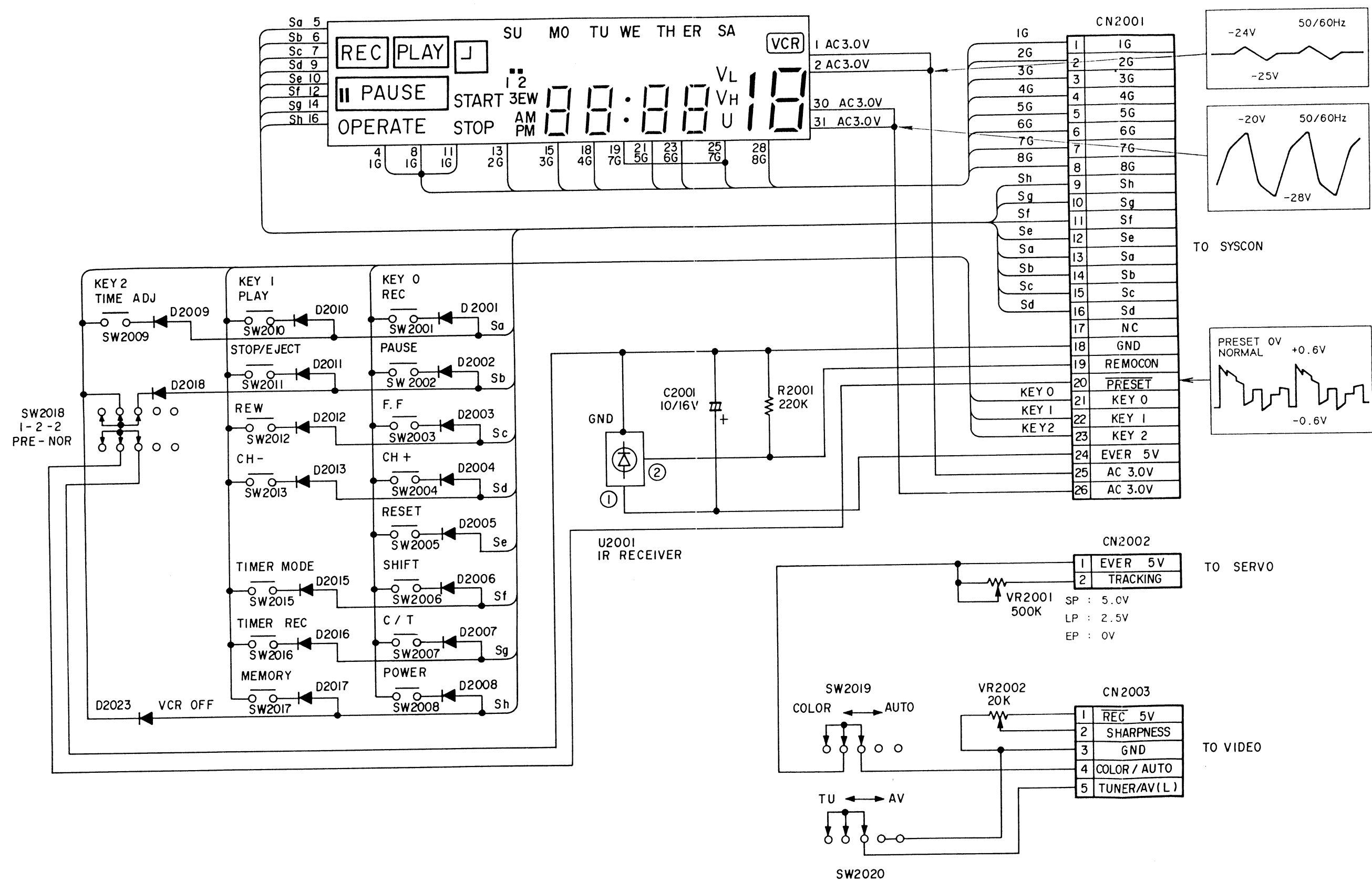


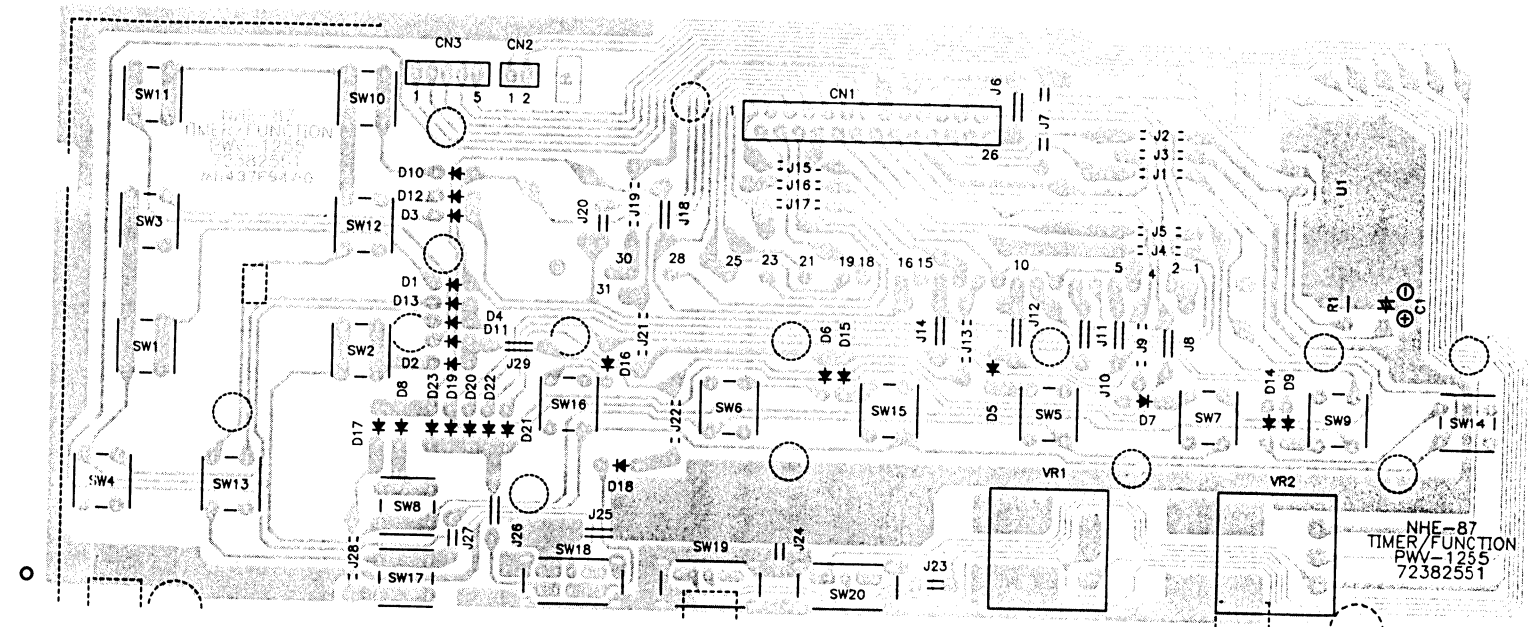
4-11. AUDIO SCHEMATIC DIAGRAM (N9053G)



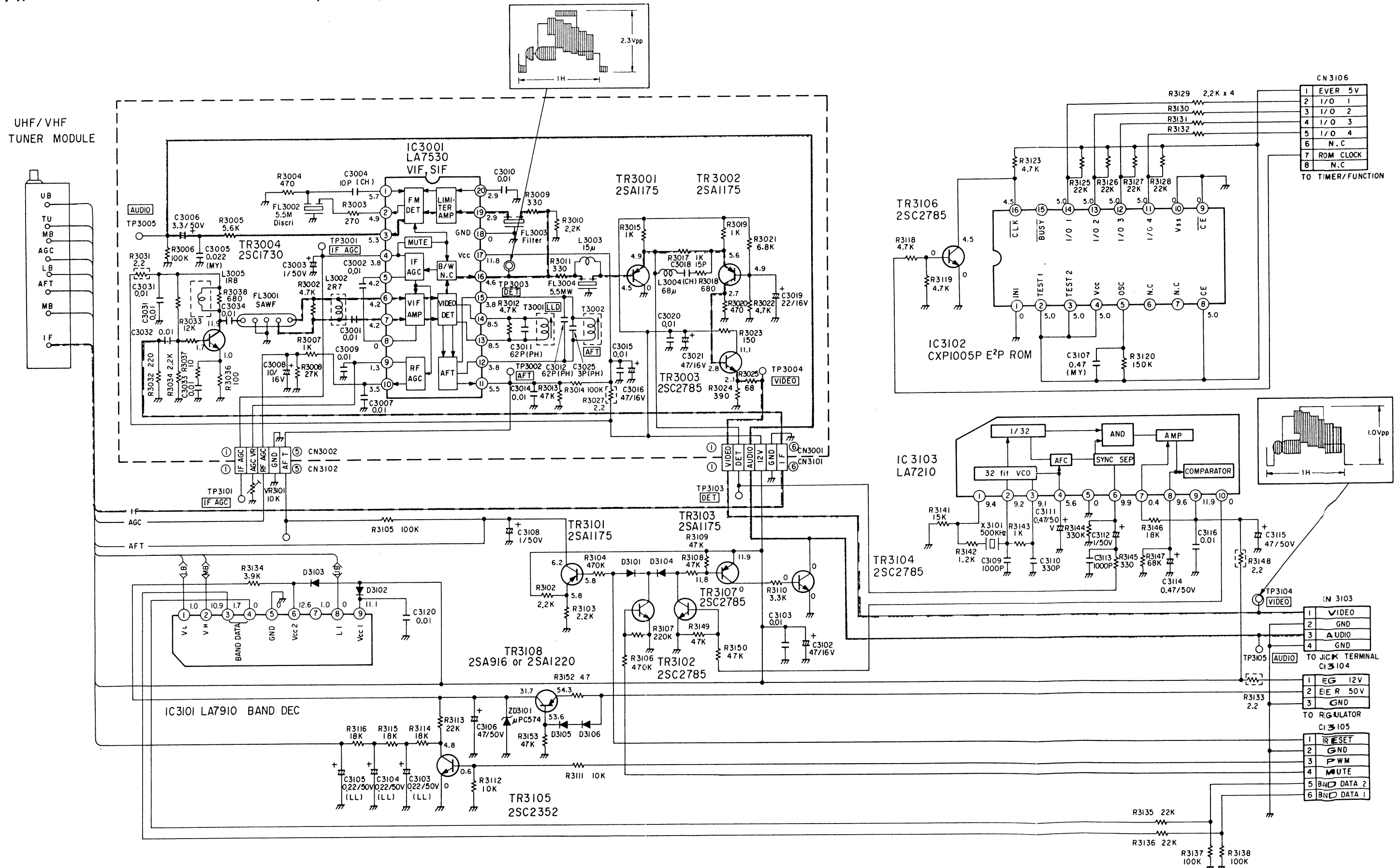


4-12. TIMER FUNCTION/SUB FUNCTION SCHEMATIC DIAGRAM (N9053G)

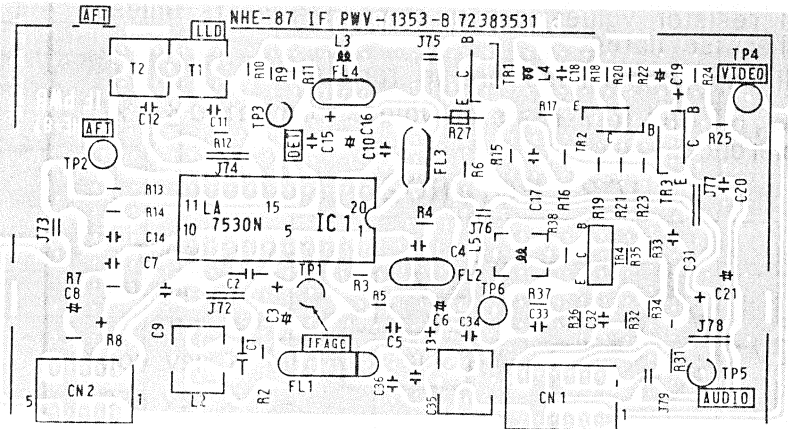
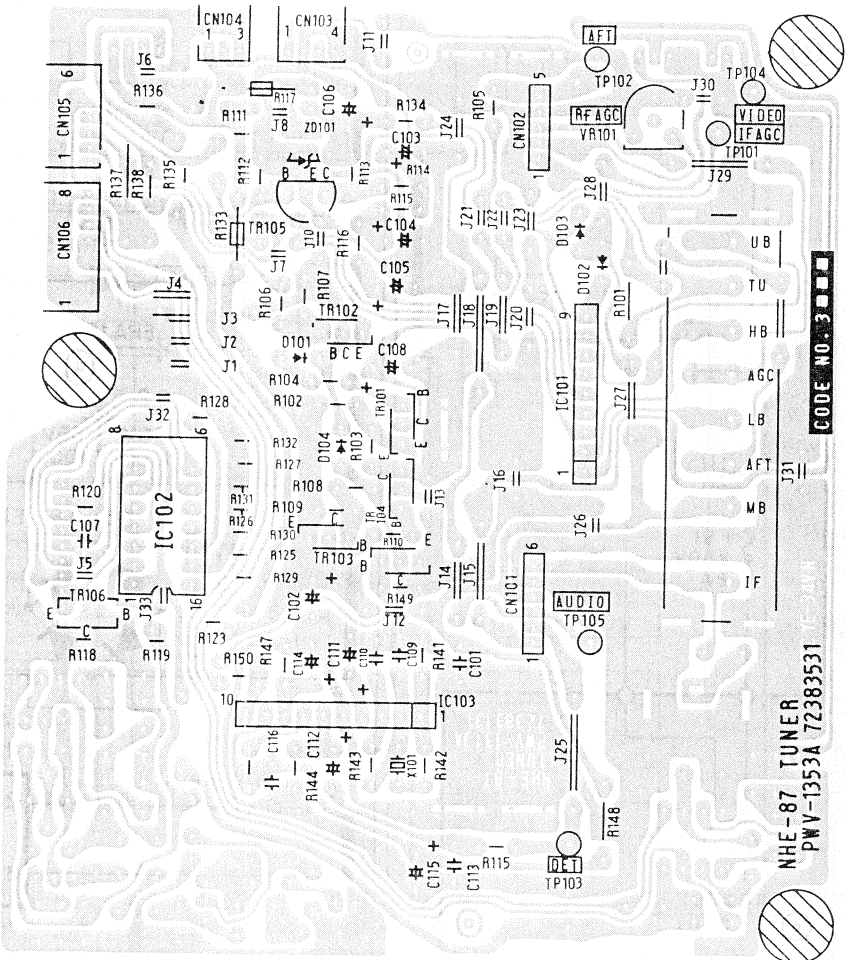




4-14. TUNER/IF SCHEMATIC DIAGRAM (N9053G)

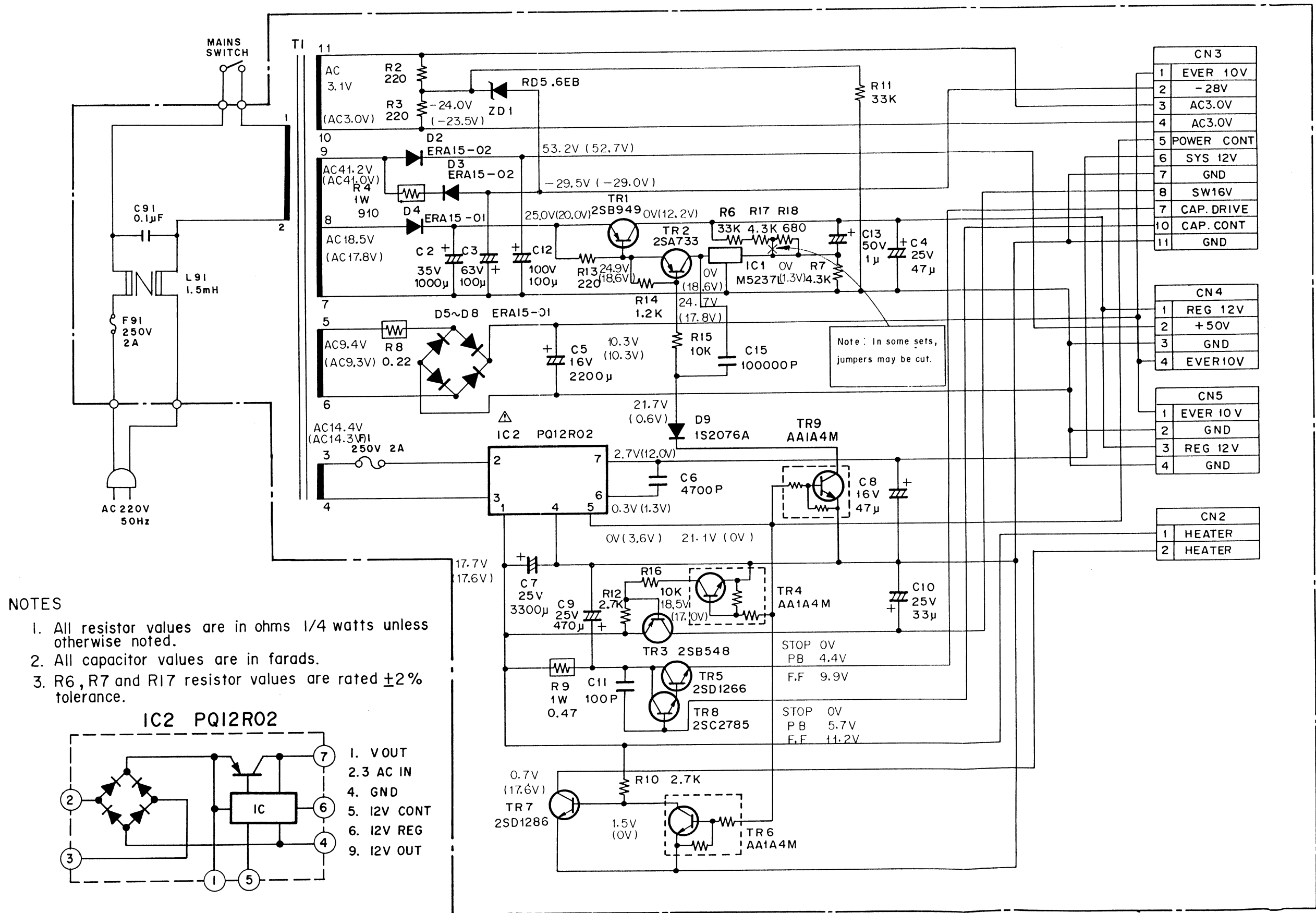


4-15. TUNER/IF CIRCUIT BOARD (SOLDER SIDE) (N9053G)

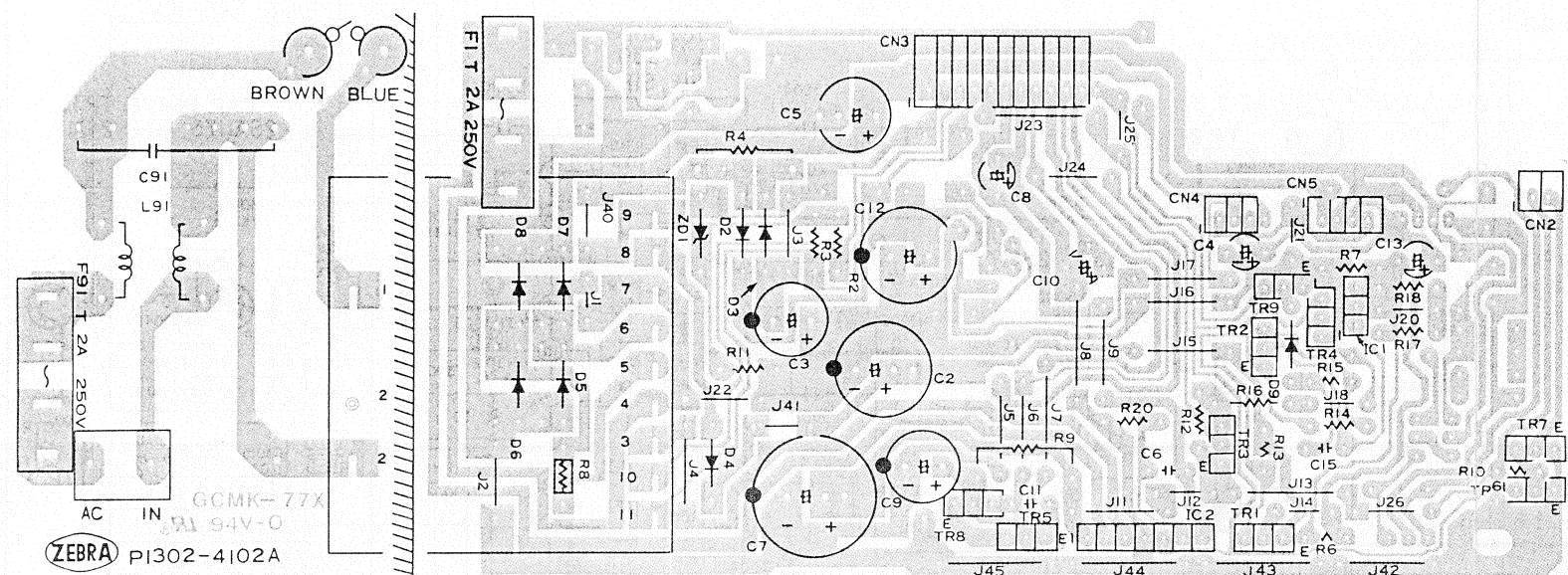


VIDEO
AUDIO

4-16. POWER/REGULATOR SCHEMATIC DIAGRAM (N9053G)



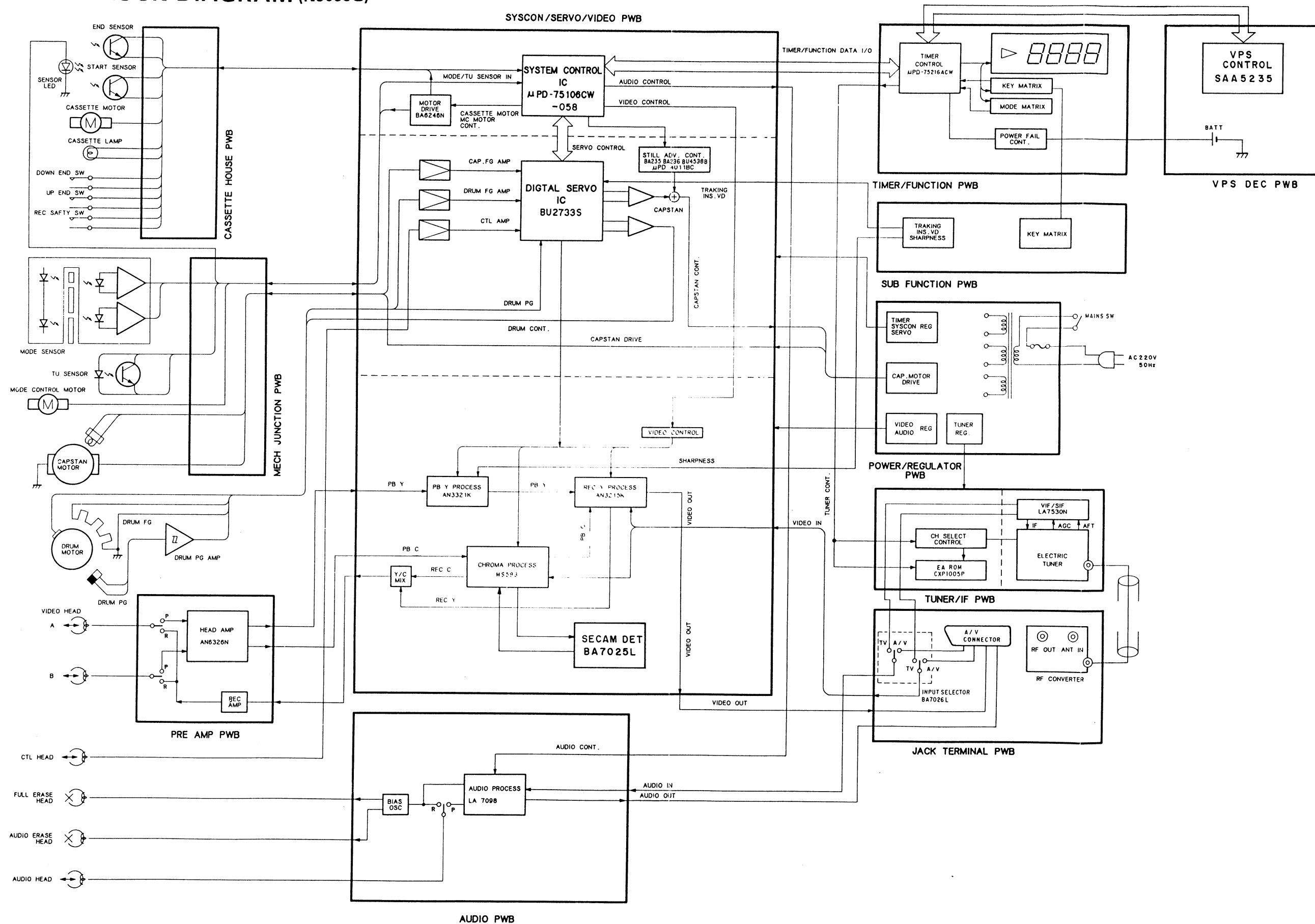
4-17. POWER/REGULATOR CIRCUIT BOARD (N9053G)



SECTION 4-1

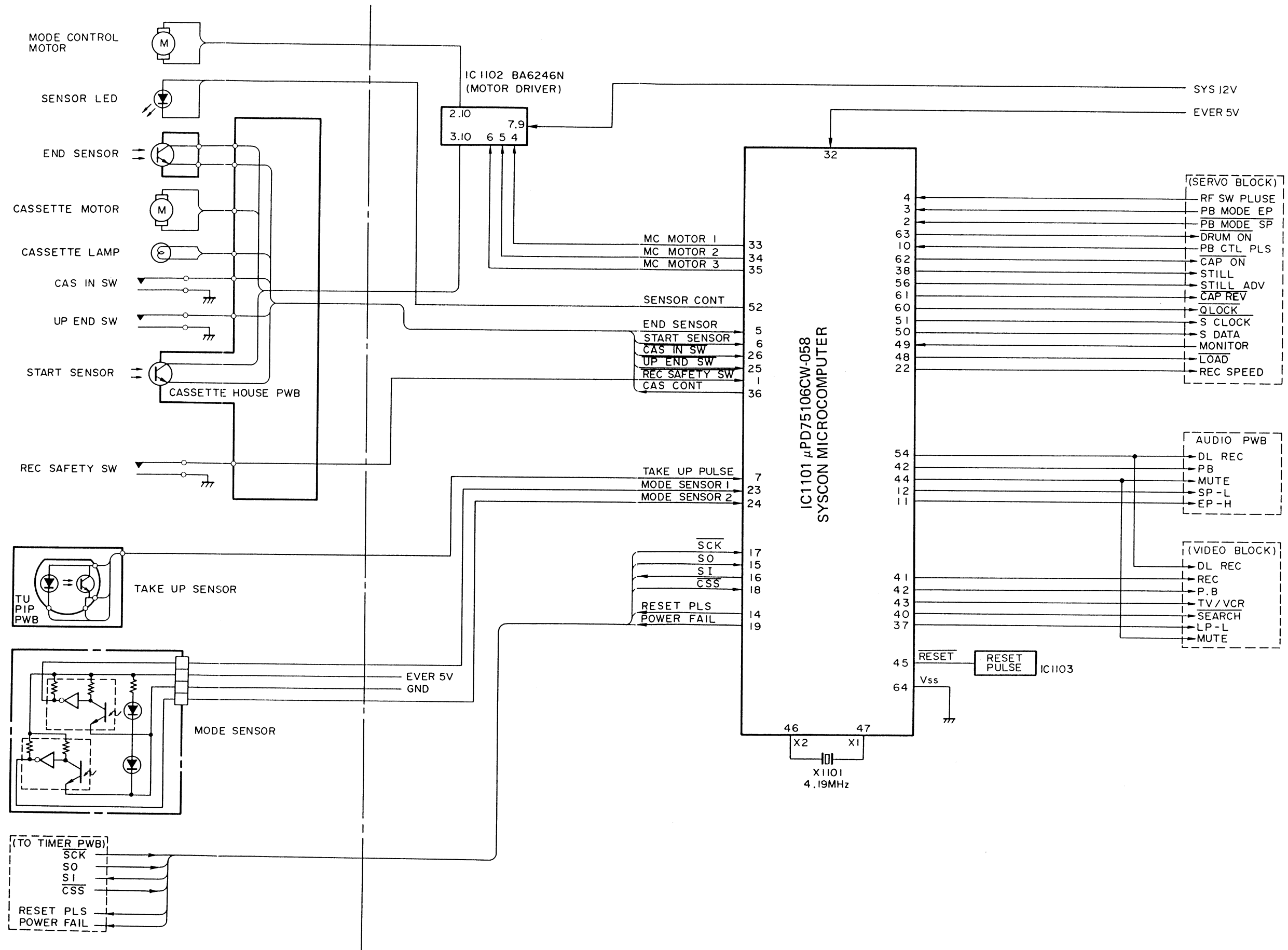
DIAGRAMS AND TIMING CHARTS (N9055G)

1. GENERAL BLOCK DIAGRAM (N9055G)

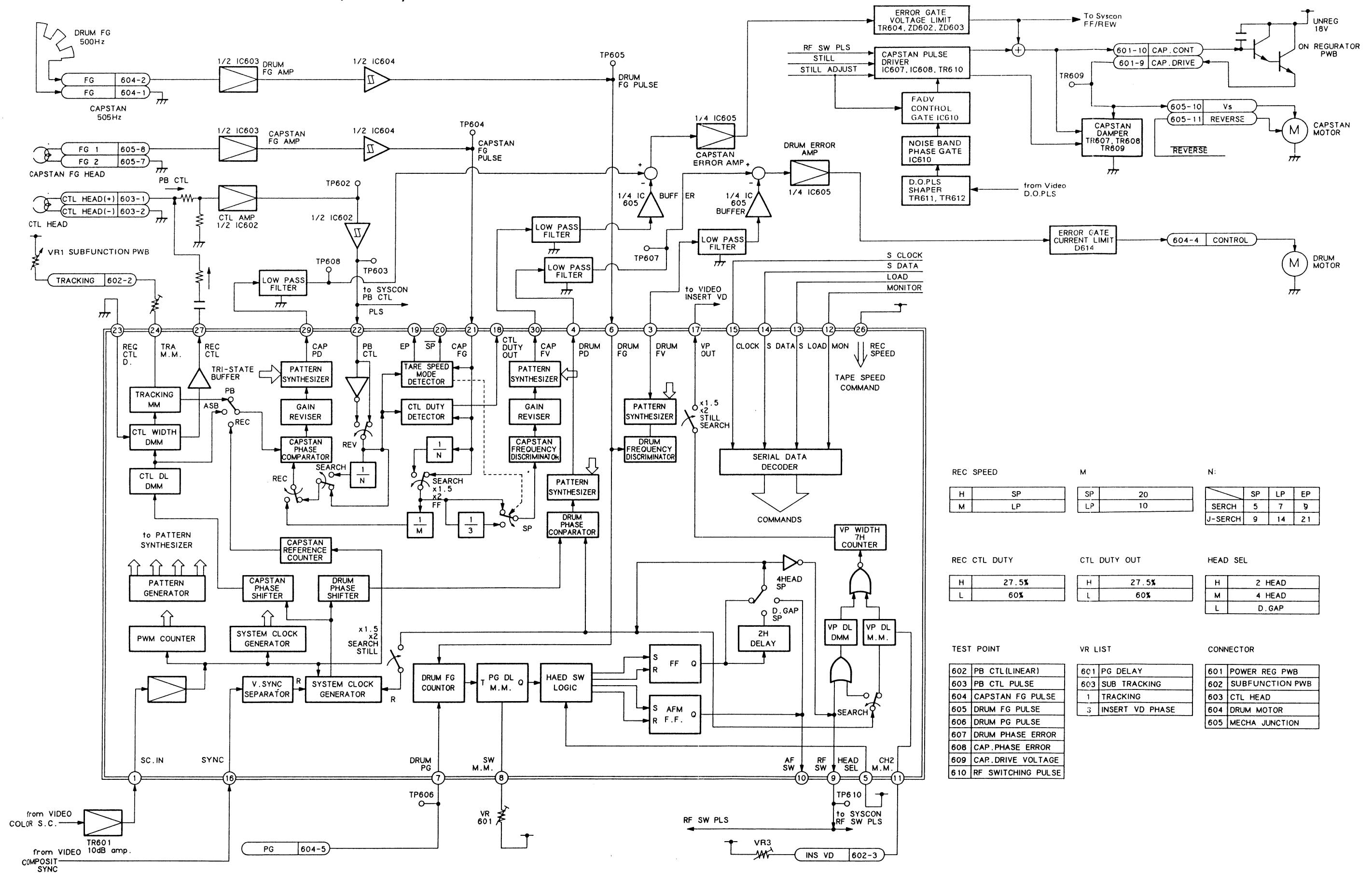


2. BLOCK DIAGRAM

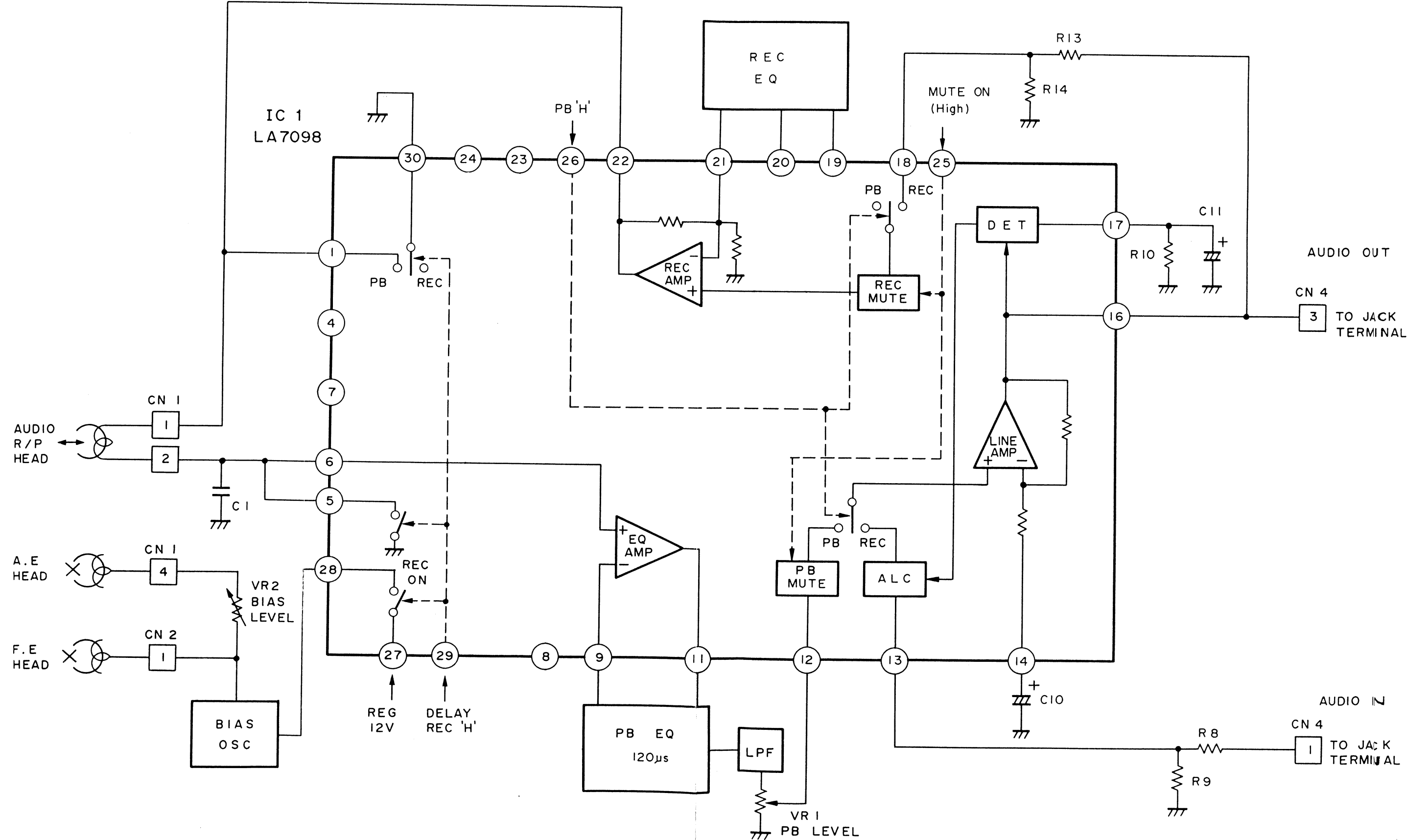
2-1. SYSTEM CONTROL BLOCK DIAGRAM (N9055G)



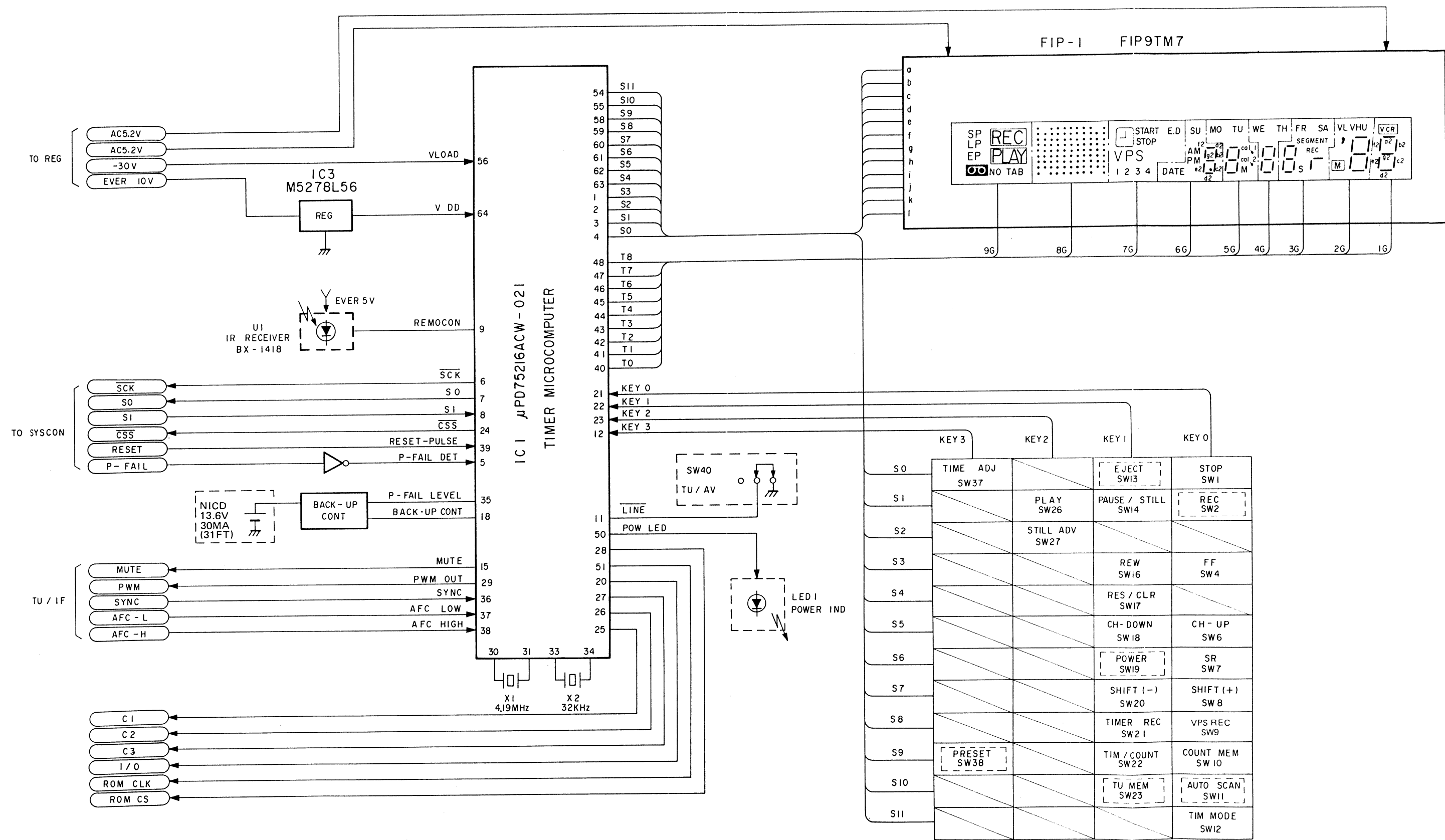
2-2. SERVO CONTROL BLOCK DIAGRAM (N9055G)



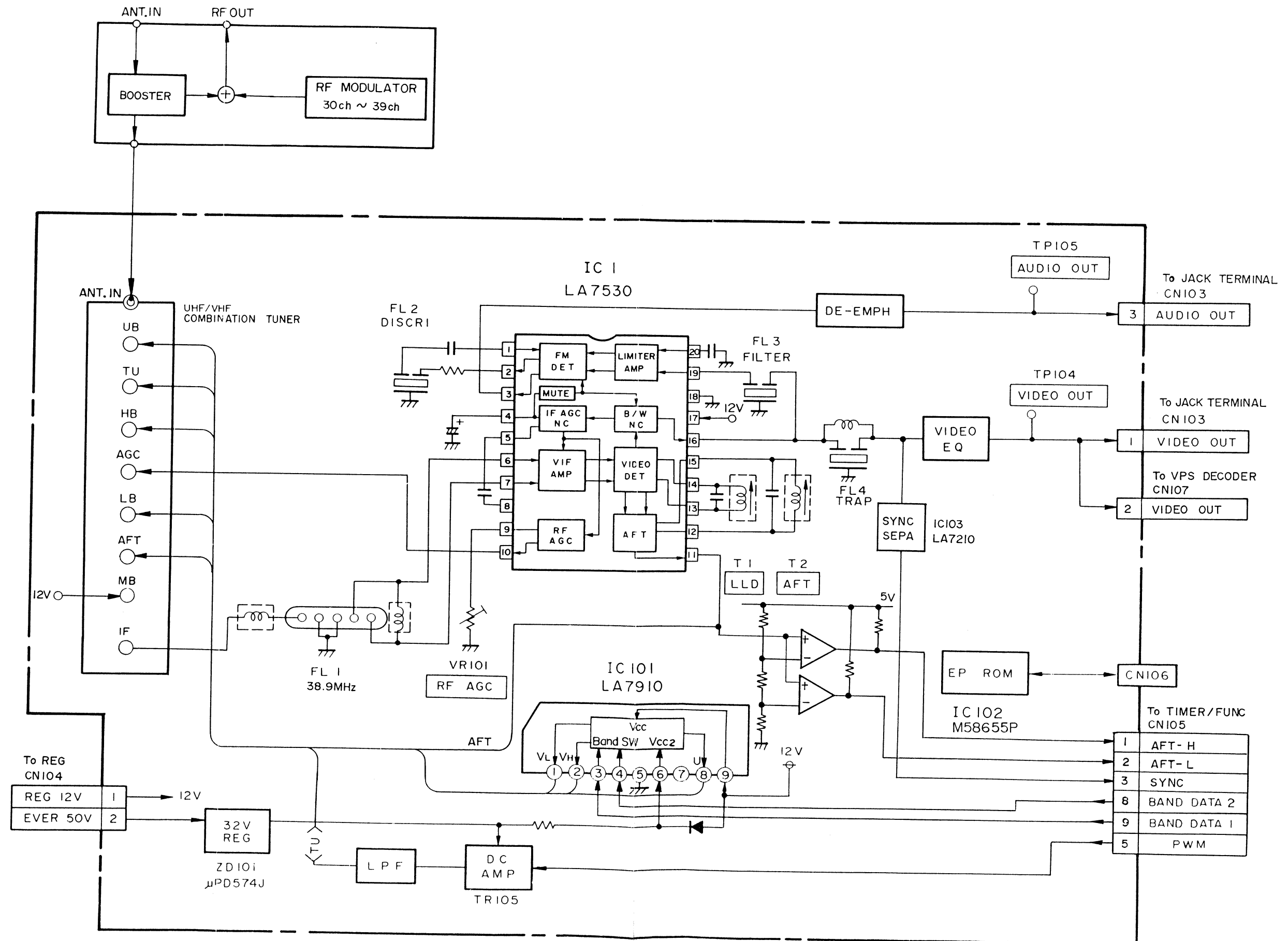
2-3. AUDIO BLOCK DIAGRAM (N9055G)



2-4. TIMER/FUNCTION BLOCK DIAGRAM (N9055G)

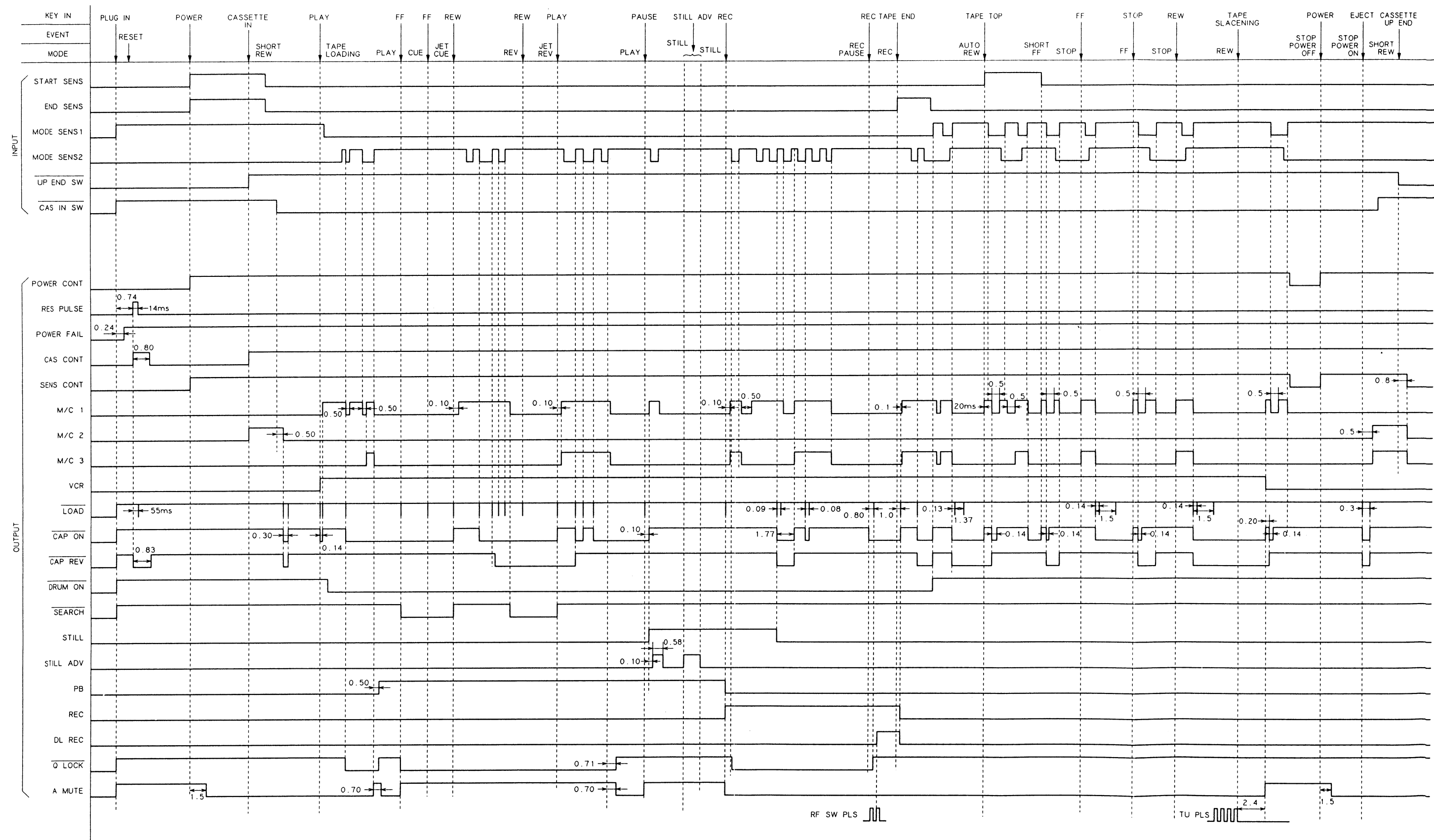


2-5. TUNER/IF BLOCK DIAGRAM (N9055G)

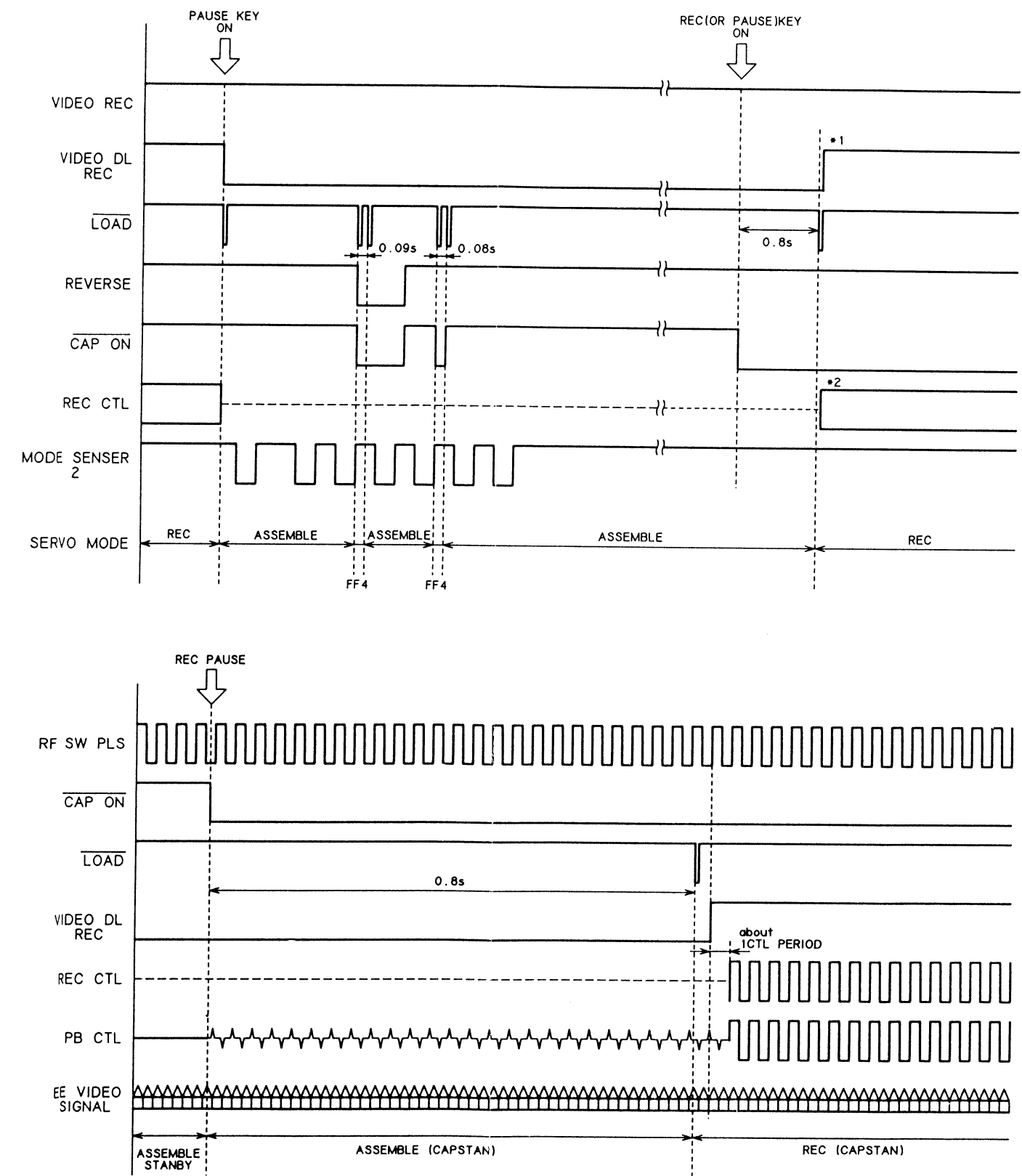


3. TIMING CHART

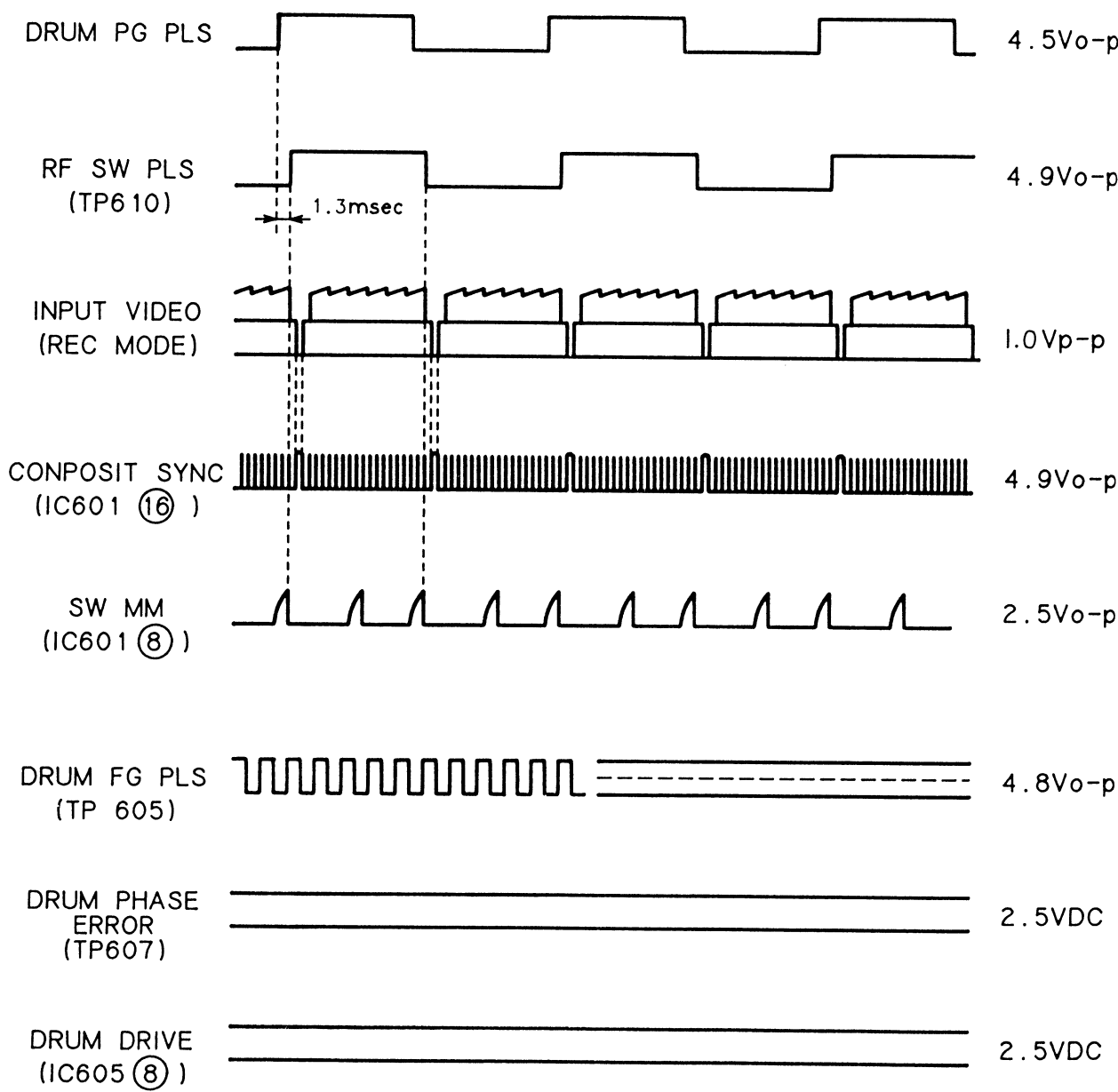
3-1. SYSTEM CONTROL TIMING CHART (N9055G)



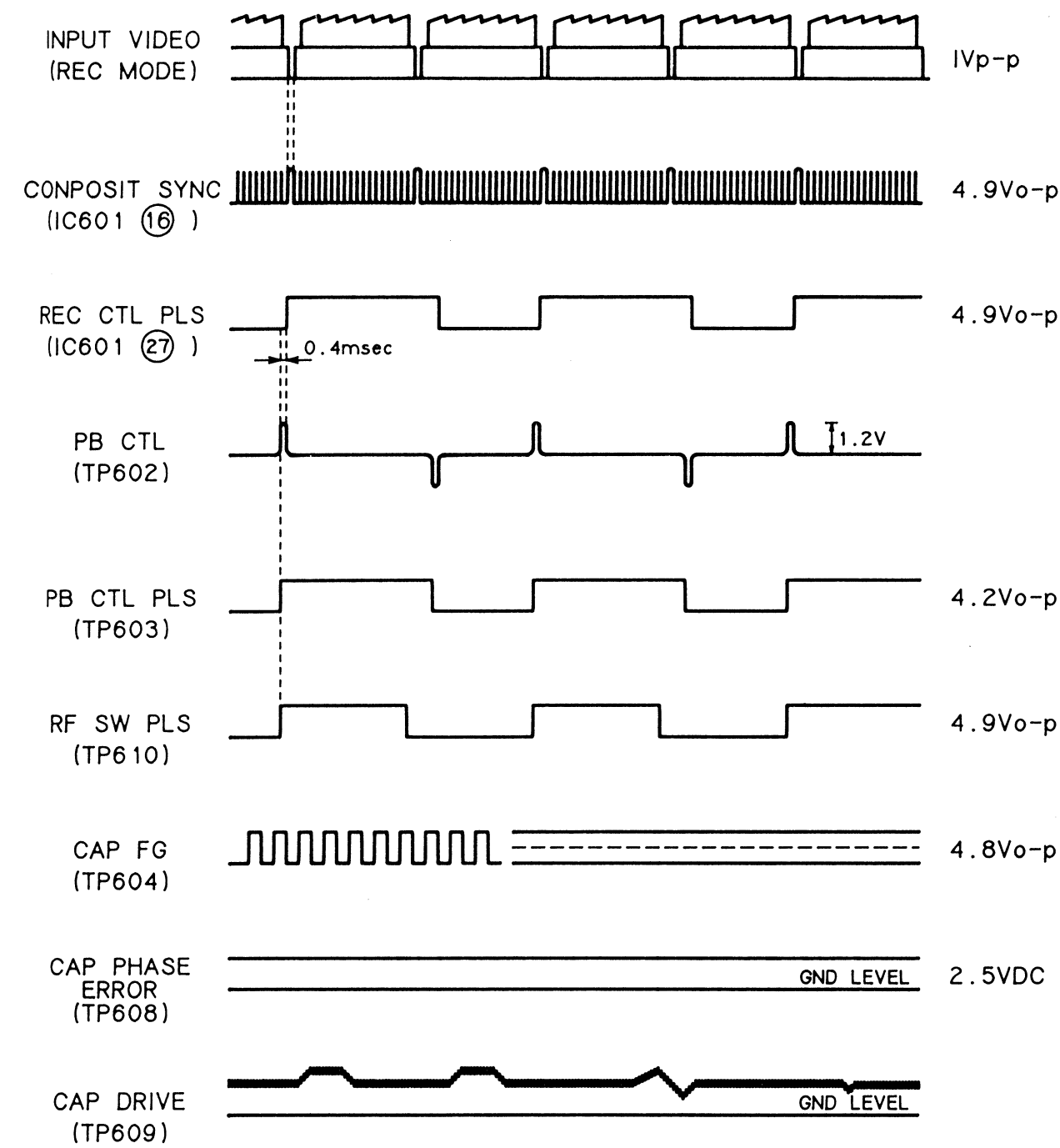
3-2. ASSEMBLE RECORD TIMING CHART (N9055G)



3-3. DRUM SERVO TIMING CHART (N9055G)



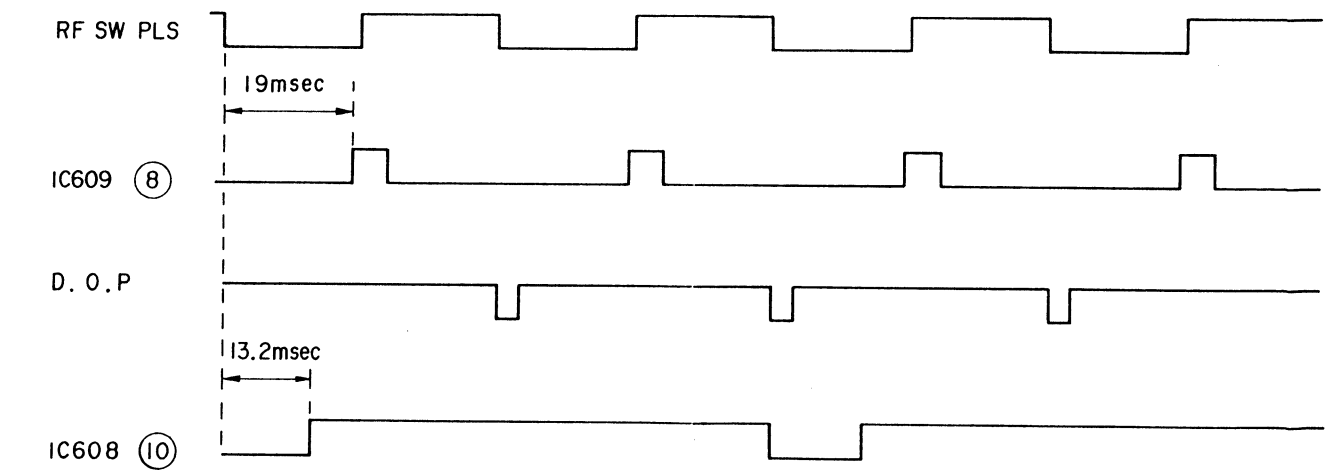
3-4. CAPSTAN SERVO TIMING CHART (N9055G)

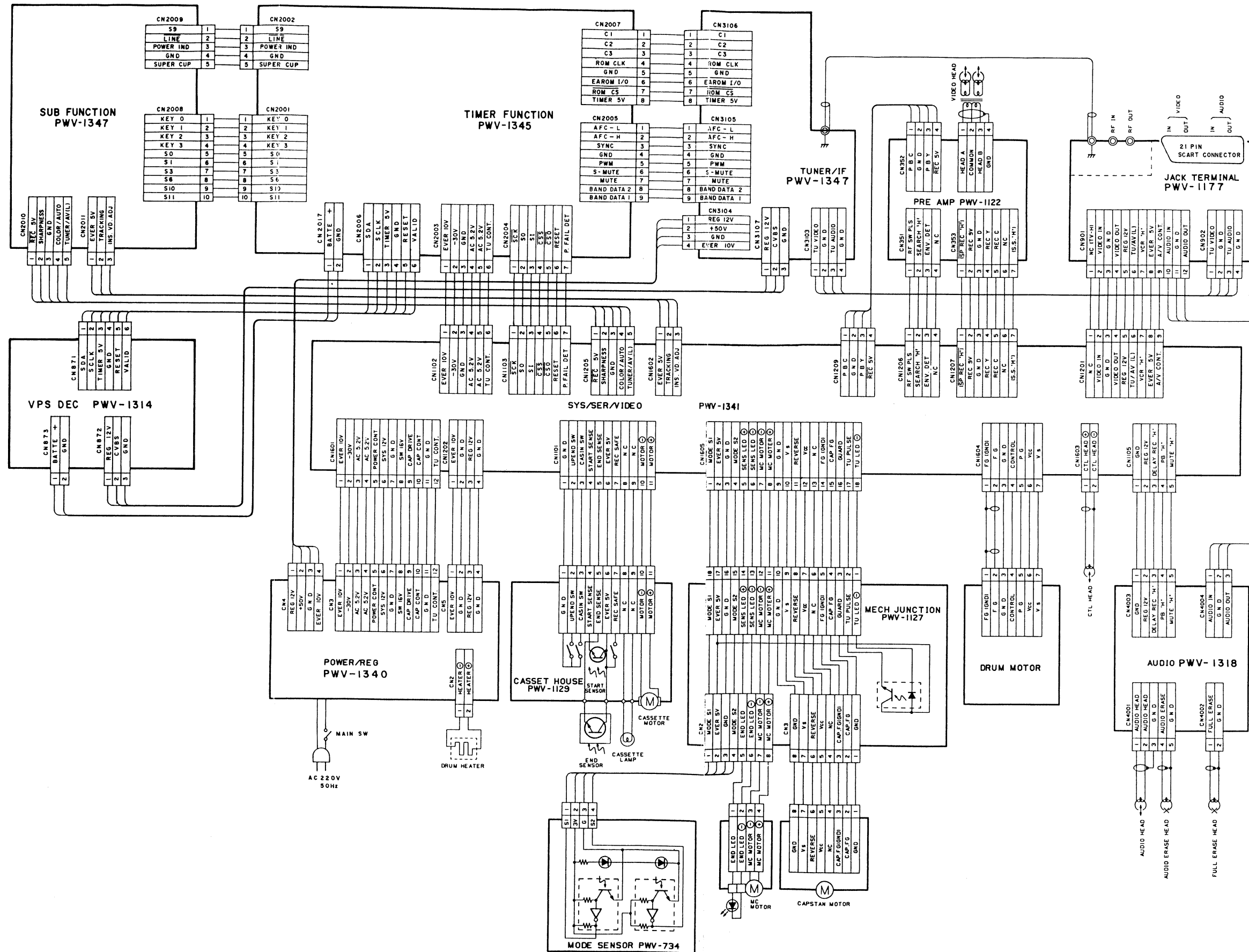


3-5. PARAMETERS (N9055G)

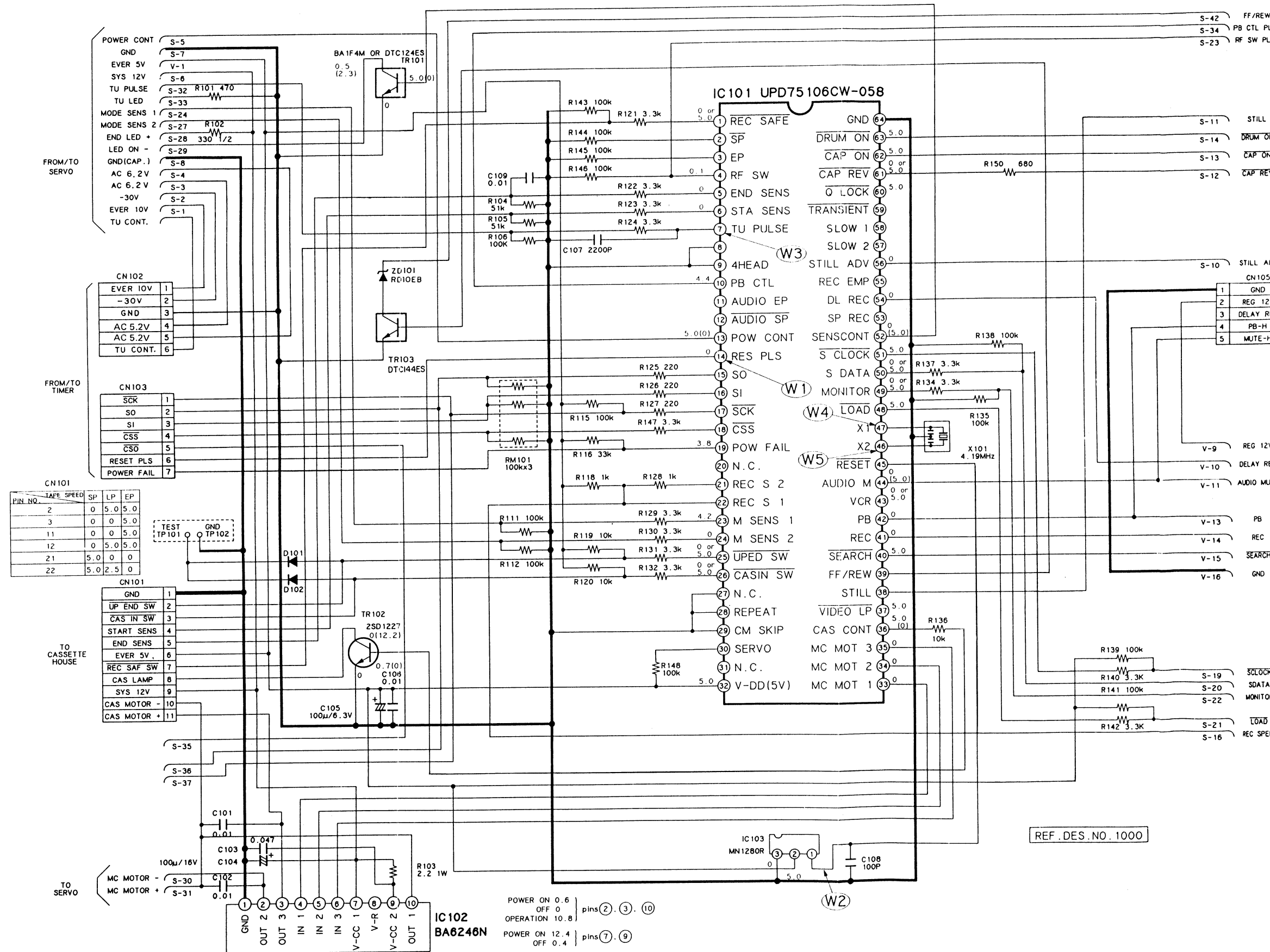
PARAMETER		RF SW PLS	DRUM FG	CAPSTAN FG	CAPSTAN DRIVE
MODE		Frequency (Hz)	Frequency (Hz)	Frequency (Hz)	Voltage (Vlot. DC)
SP	REC NORMAL P.B.	24.99	499.87	504.6	3.2
	CUE	25.73	514.64	3637	6.9
	REVIW	24.07	481.02	3401	6.8
	JET-CUE	26.25	525.02	5830	9.6
	JET-REVIEW	23.63	472.60	5248	9.1
	STILL	24.87	497.43	0 (Motor stop)	0

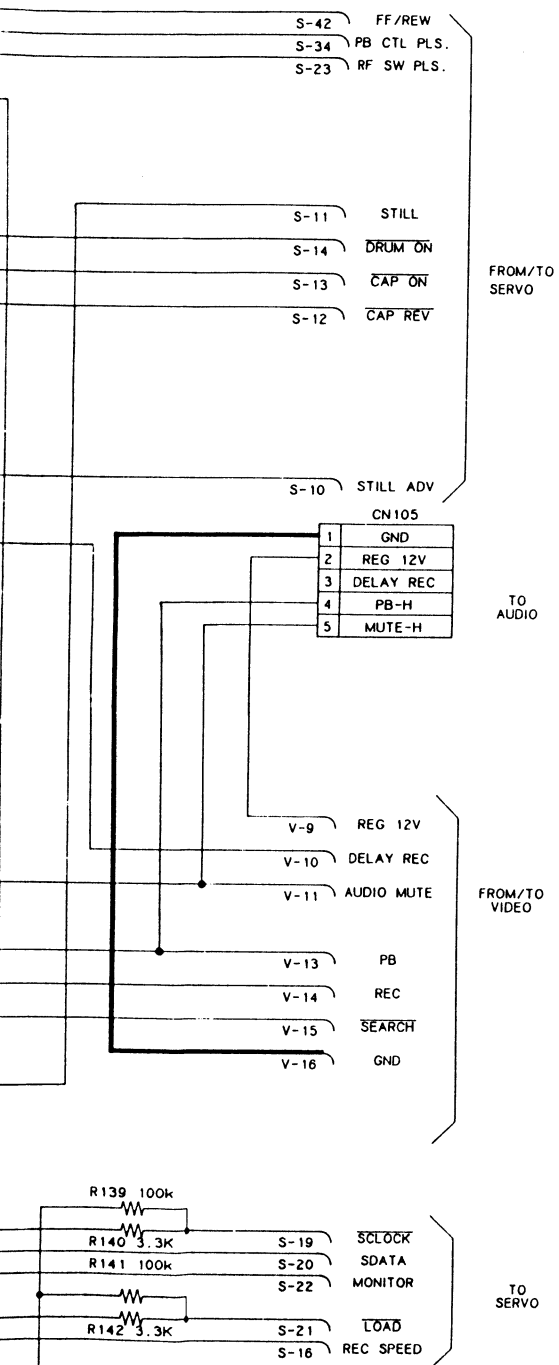
3-6. AUTOMATIC NOISE FEEDING (N9055G)



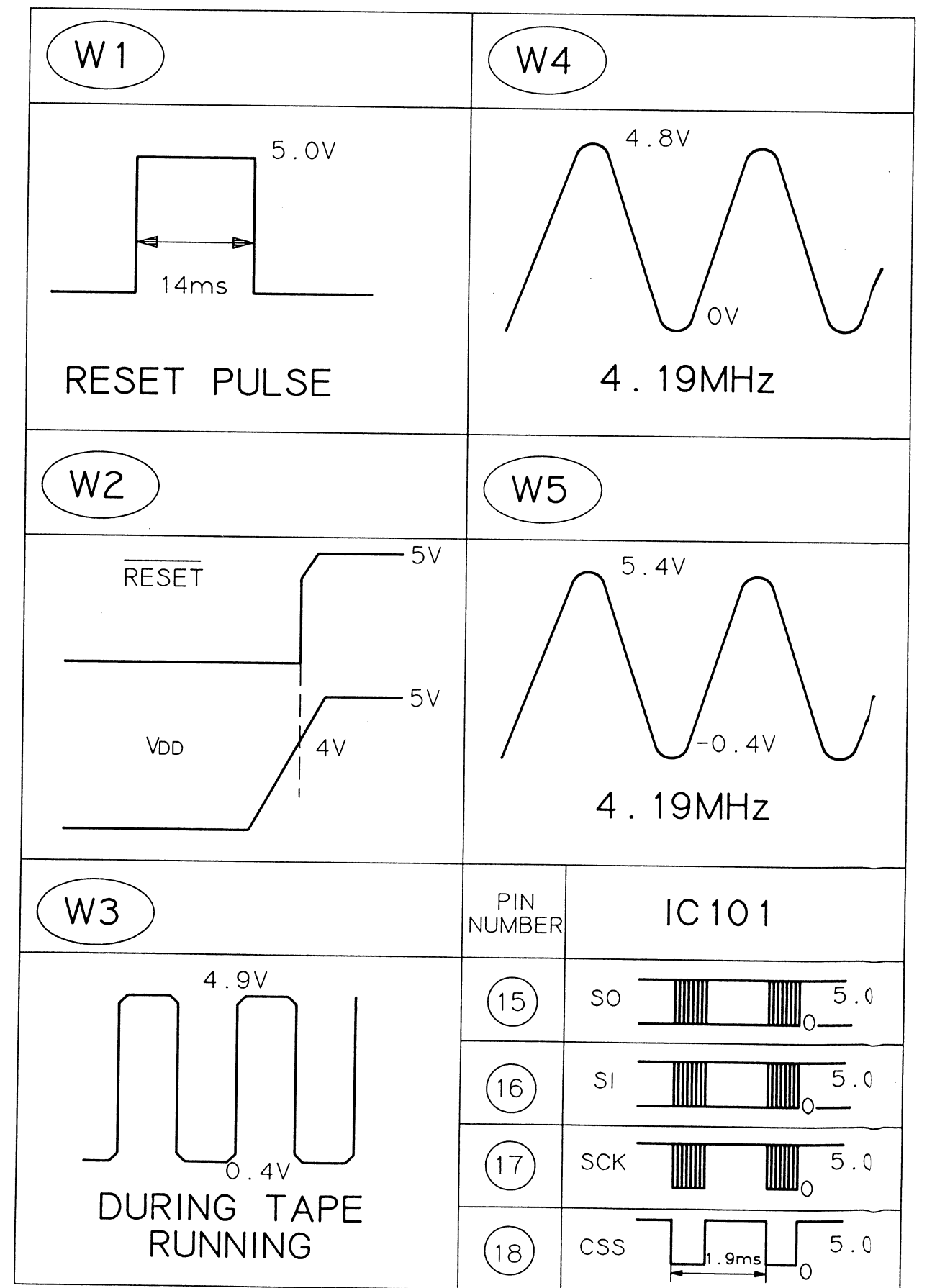


4-2. SYSCON SCHEMATIC DIAGRAM (N9055G)

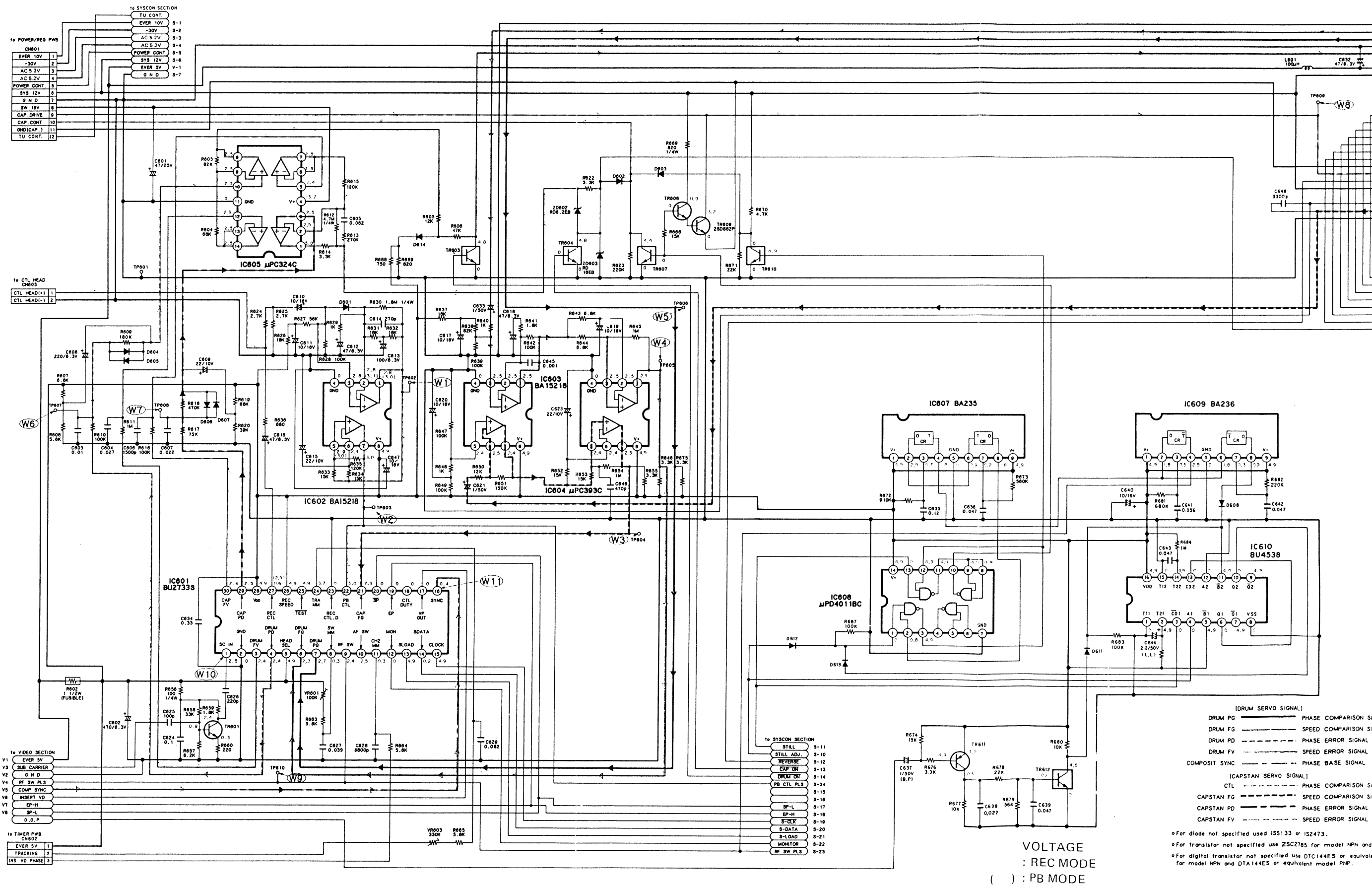


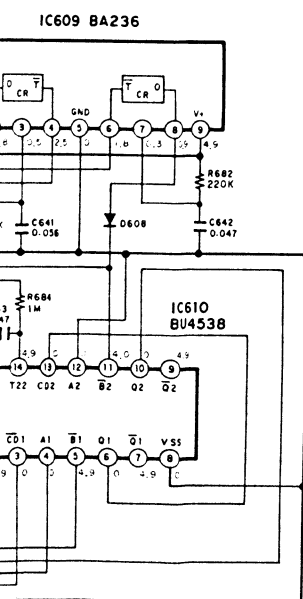
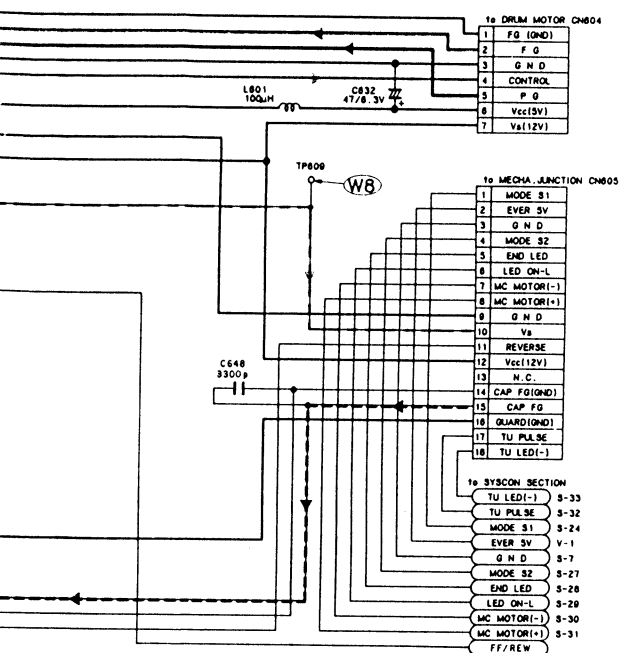


SYSCON WAVEFORMS



4-3. SERVO SCHEMATIC DIAGRAM (N9055G)





NO.	ITEM
801	G.N.D
802	PB CTL (L.N.)
803	PB CTL PLS
804	CAP FG PLS
805	DRUM FG PLS
806	DRUM PD PLS
807	DRUM PHASE ERROR
808	CAP. PHASE ERROR
809	CAP. DRIVE VOLTAGE
810	RF SW PLS

NO.	ITEM
801	PG DL
802	INS VO PHASE
803	TRACKING SUB

[DRUM SERVO SIGNAL]

DRUM PG ——— PHASE COMPARISON SIGNAL

DRUM FG ——— SPEED COMPARISON SIGNAL

DRUM PD ——— PHASE ERROR SIGNAL

DRUM FV ——— SPEED ERROR SIGNAL

COMPOSIT SYNC ——— PHASE BASE SIGNAL

[CAPSTAN SERVO SIGNAL]

CTL ——— PHASE COMPARISON SIGNAL

CAPSTAN FG ——— SPEED COMPARISON SIGNAL

CAPSTAN PD ——— PHASE ERROR SIGNAL

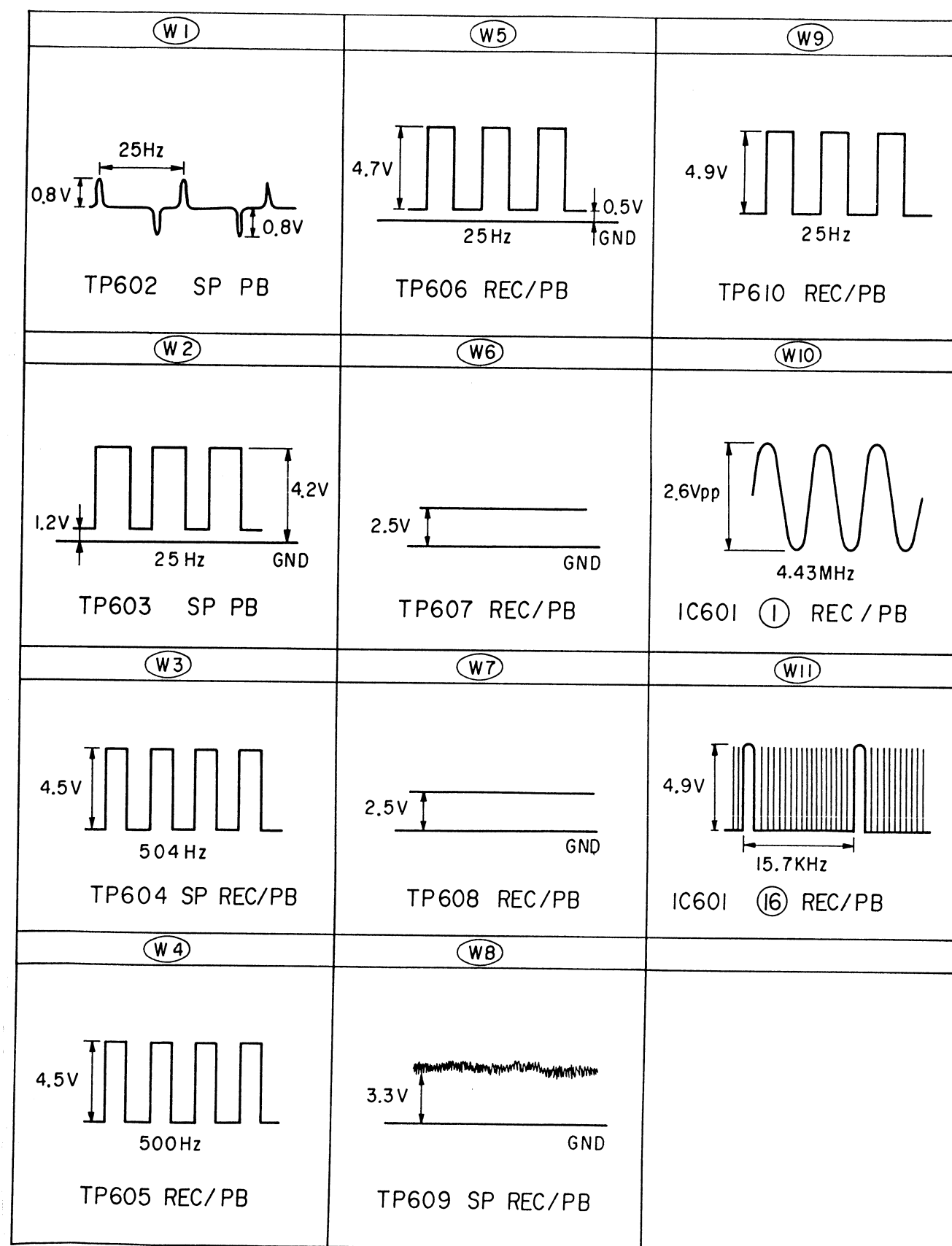
CAPSTAN FV ——— SPEED ERROR SIGNAL

For diode not specified use 1SS133 or 1S2473.

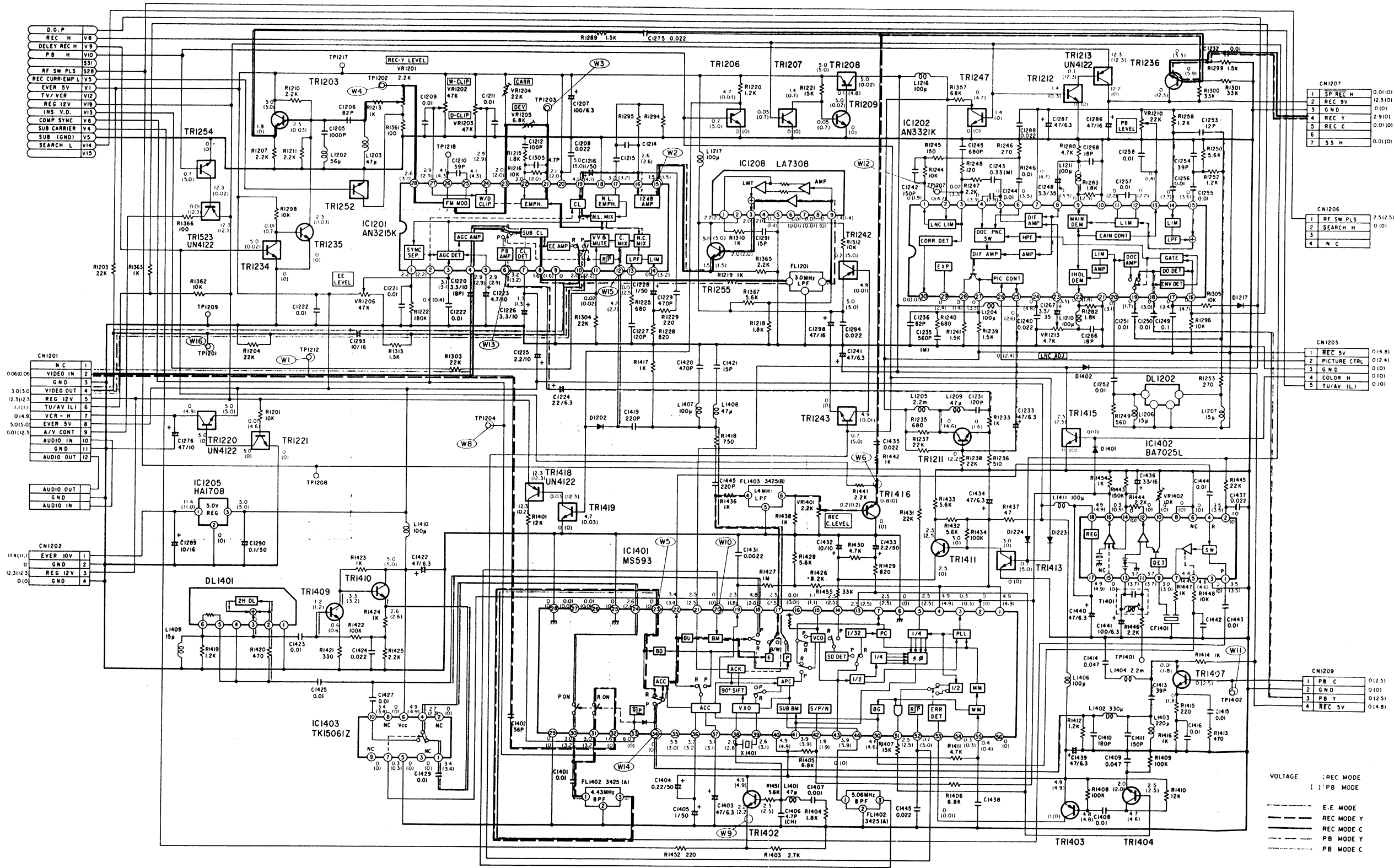
For transistor not specified use 2SC2785 for model NPN and 2SA1175 for model PNP.

For digital transistor not specified use DTC144ES or equivalent for model NPN and DTA144ES or equivalent model PNP.

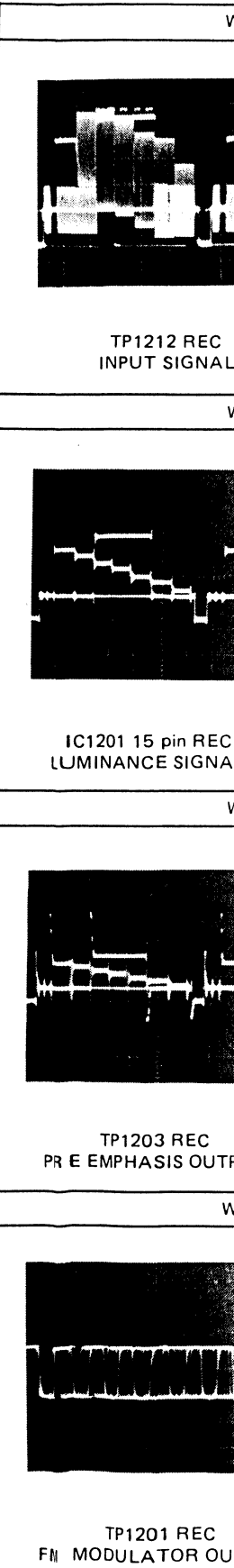
SERVO WAVEFORMS



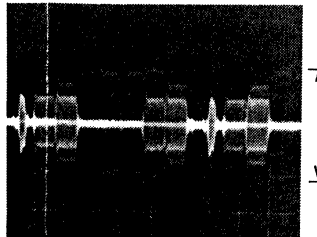
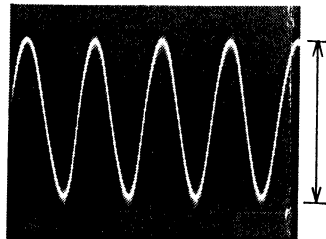
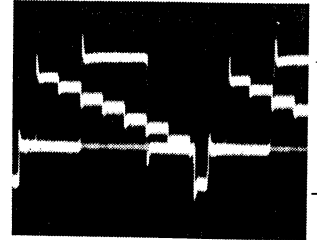
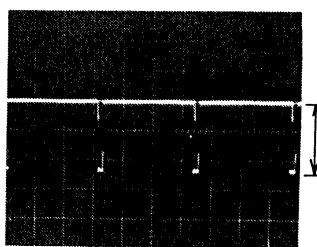
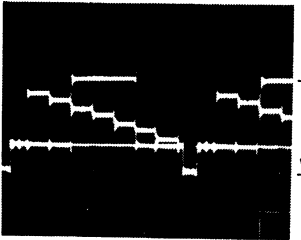
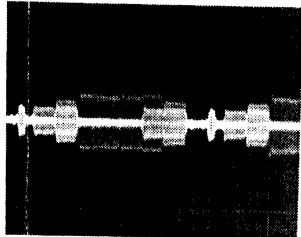
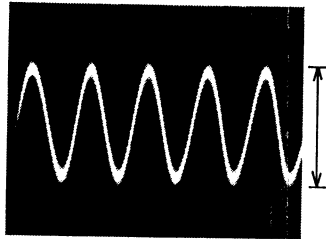
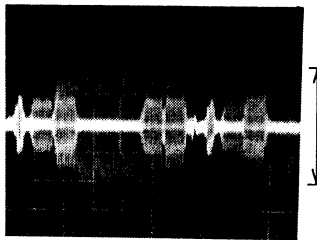
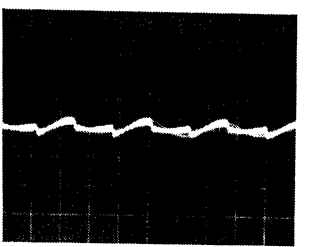
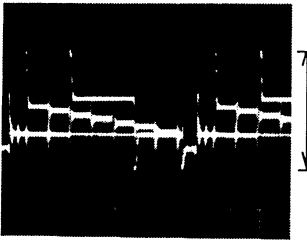
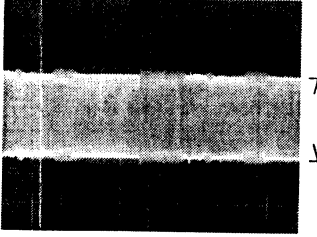
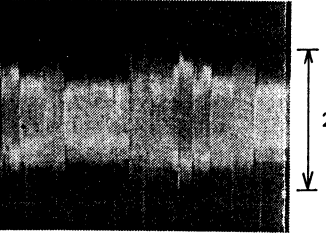
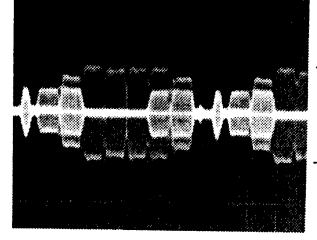
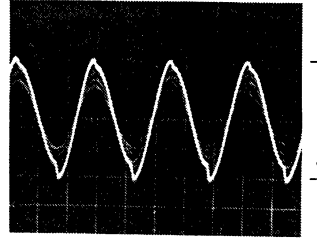
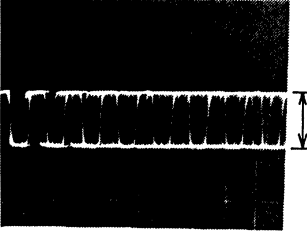
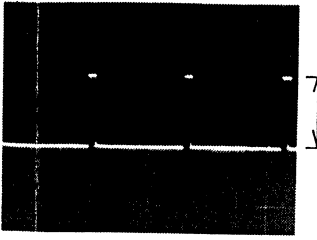
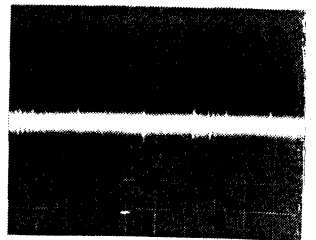
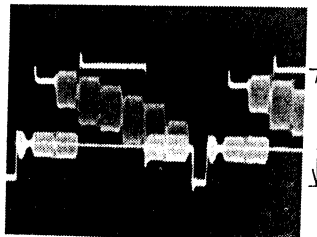
4-4. VIDEO/CHROMA SCHEMATIC DIAGRAM (N9055G)



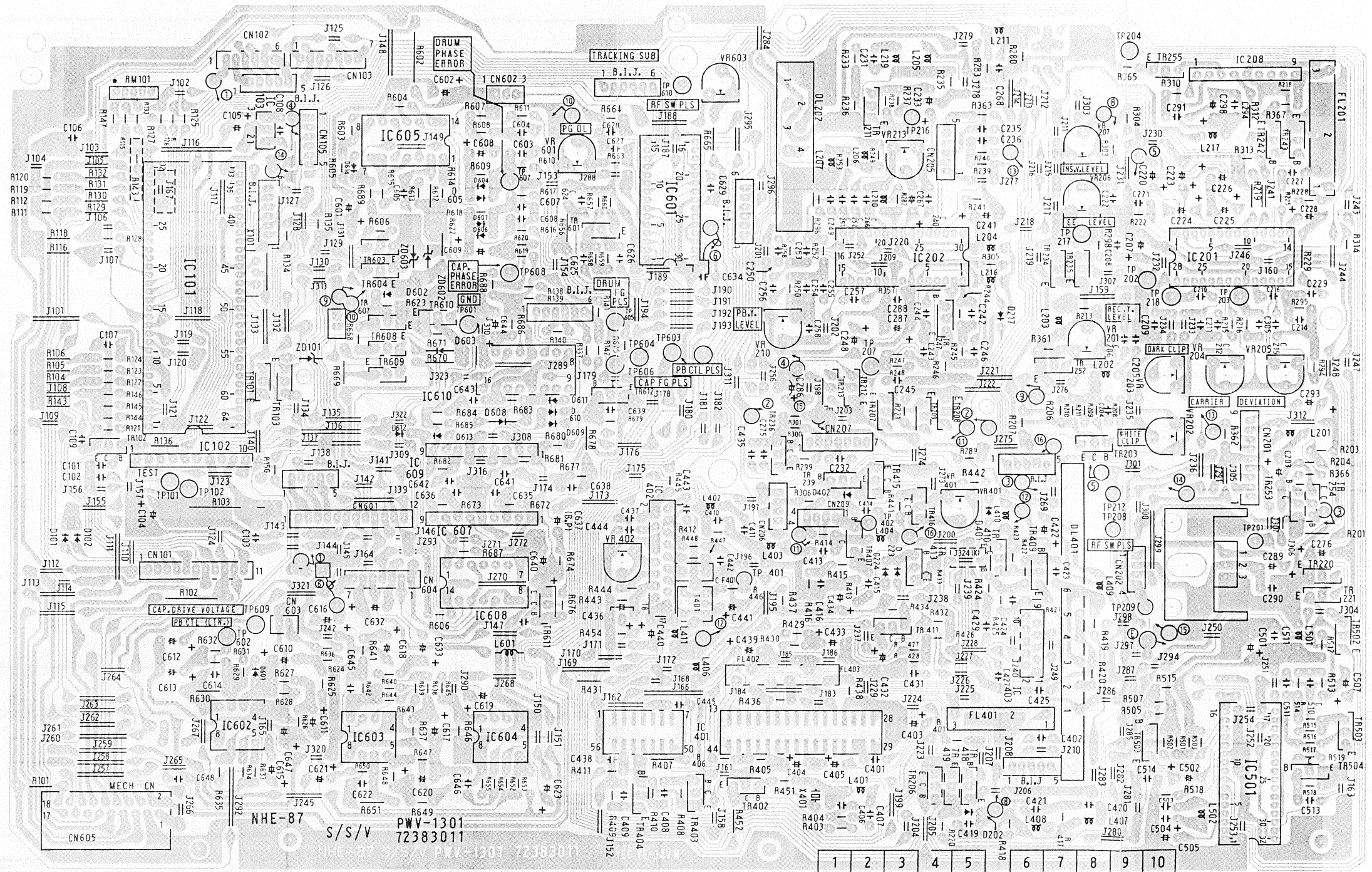
VIDEO WAVEFORM



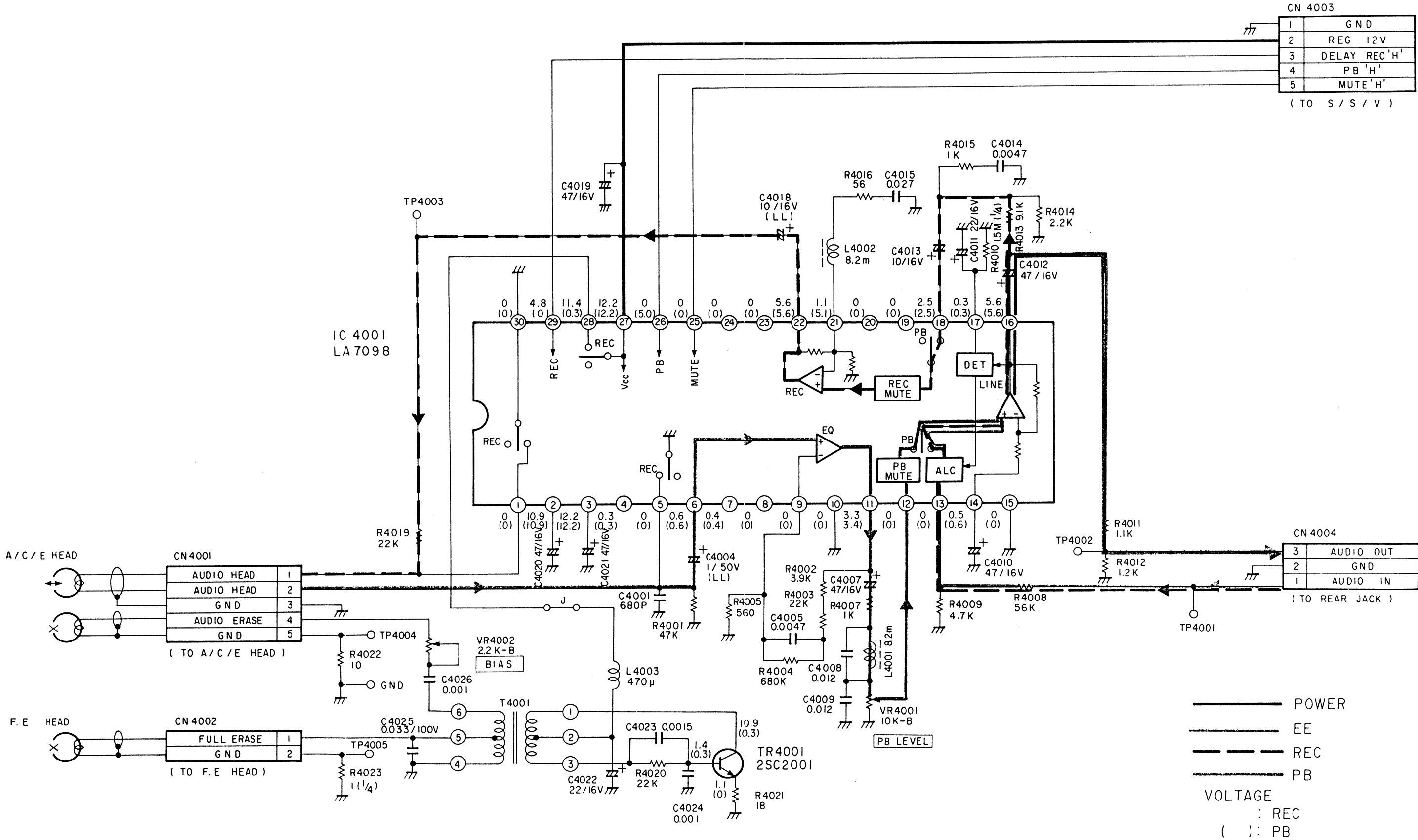
VIDEO WAVEFORMS

W1  TP1212 REC INPUT SIGNAL X = 10μs Y = 200mV	W5  IC1401 25 pin REC CHROMINANCE SIGNAL X = 10μs Y = 50mV	W9  TR1402 Emitter REC 4.43 MHz VXO OUTPUT X = 100ns Y = 100mV	W13  IC1401 34 pin PB PB CONVERTED CHROMINANCE SIGNAL X = 10μs Y = 50mV	W17  IC1401 55 pin REC BURST GATE PULSE X = 20μs/DIV. Y = 2V/DIV.
W2  IC1201 15 pin REC LUMINANCE SIGNAL X = 10μs Y = 100mV	W6  TR1416 Emitter REC REC CONVERTED CHROMINANCE SIGNAL X = 10μs Y = 50mV	W10  IC1401 20 pin REC 5.06 MHz MAIN CONVERTER INPUT X = 100ms Y = 50mV	W14  TP1207 PB LINE NOISE CANCELAR CHECK POINT X = 10μs Y = 50mV	W18  TP1401 REC (PAL) SECAM DETECTOR X = 50μs/DIV. Y = 1V/DIV.
W3  TP1203 REC PRE EMPHASIS OUTPUT X = 10μs Y = 200mV	W7  TP501 (PRE AMP) REC REC FM SIGNAL X = 10μs Y = 50mV	W11  TP1402 PB PB FM SIGNAL X = 10μs Y = 50mV	W15  IC1201 12 pin PB PB CHROMINANCE SIGNAL X = 10μs Y = 100mV	W19  TP1401 REC (SECAM) SECAM DETECTOR X = 50μs/DIV. Y = 1V/DIV.
W4  TP1201 REC FM MODULATOR OUTPUT X = 200ns Y = 500mV	W8  TP1204 REC COMPOSITE SYNC PULSE X = 20μs Y = 2V	W12  IC1201 6 pin PB PB LUMINANCE SIGNAL X = 10μs Y = 50mV	W16  TP1201 PB PB VIDEO SIGNAL X = 10μs Y = 500mV	

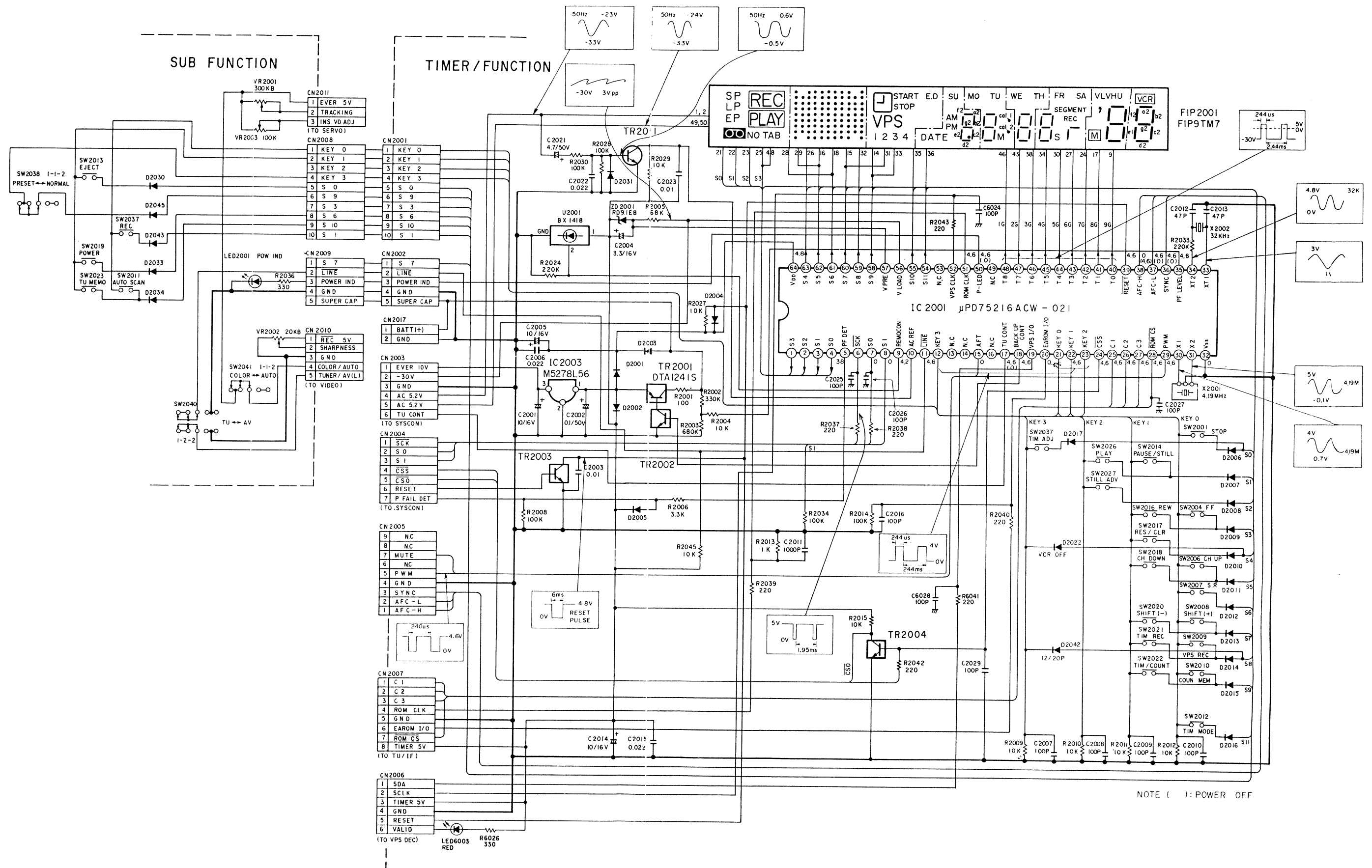
4-5. SYSCON/SERVO/VIDEO CIRCUIT BOARD (SOLDER SIDE) (N9055G)



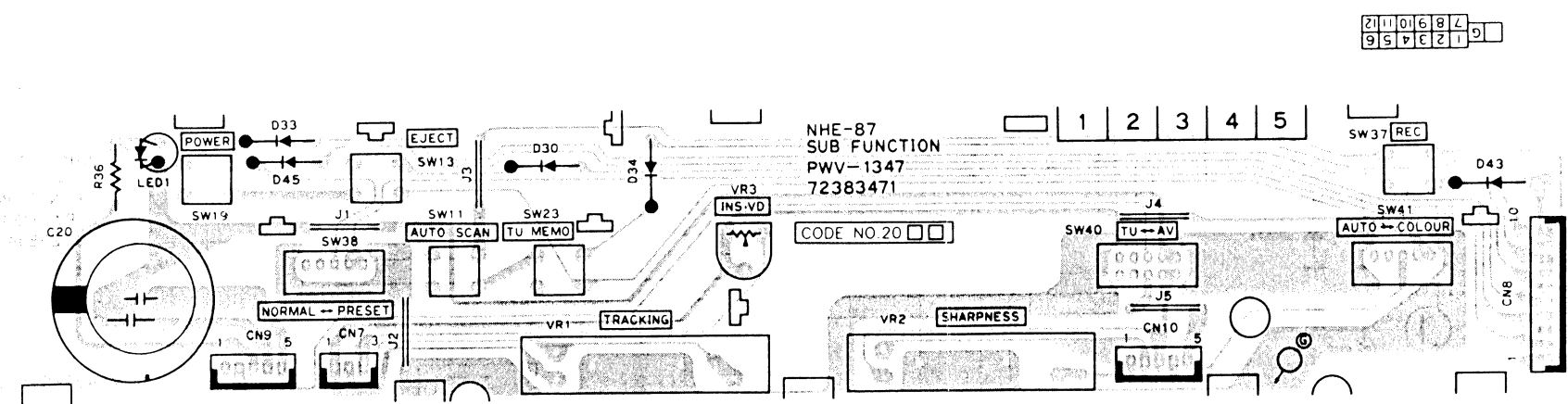
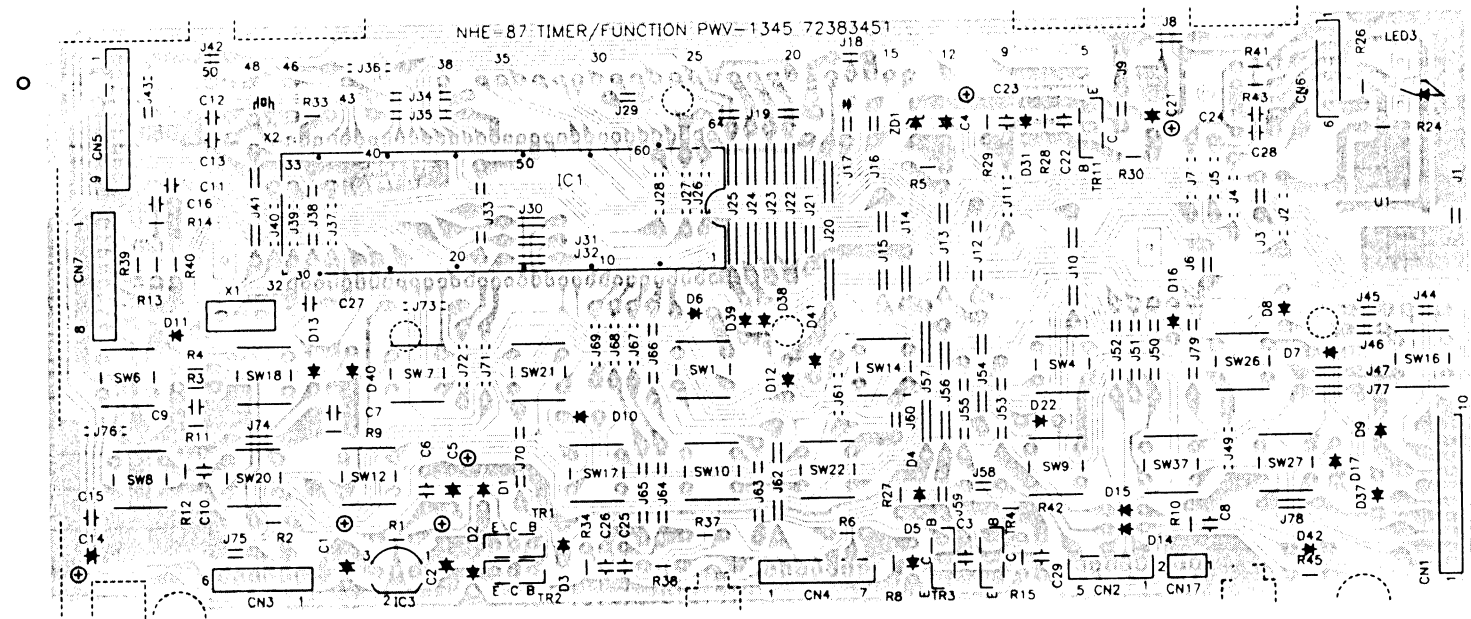
4-6. AUDIO SCHEMATIC DIAGRAM (N9055G)



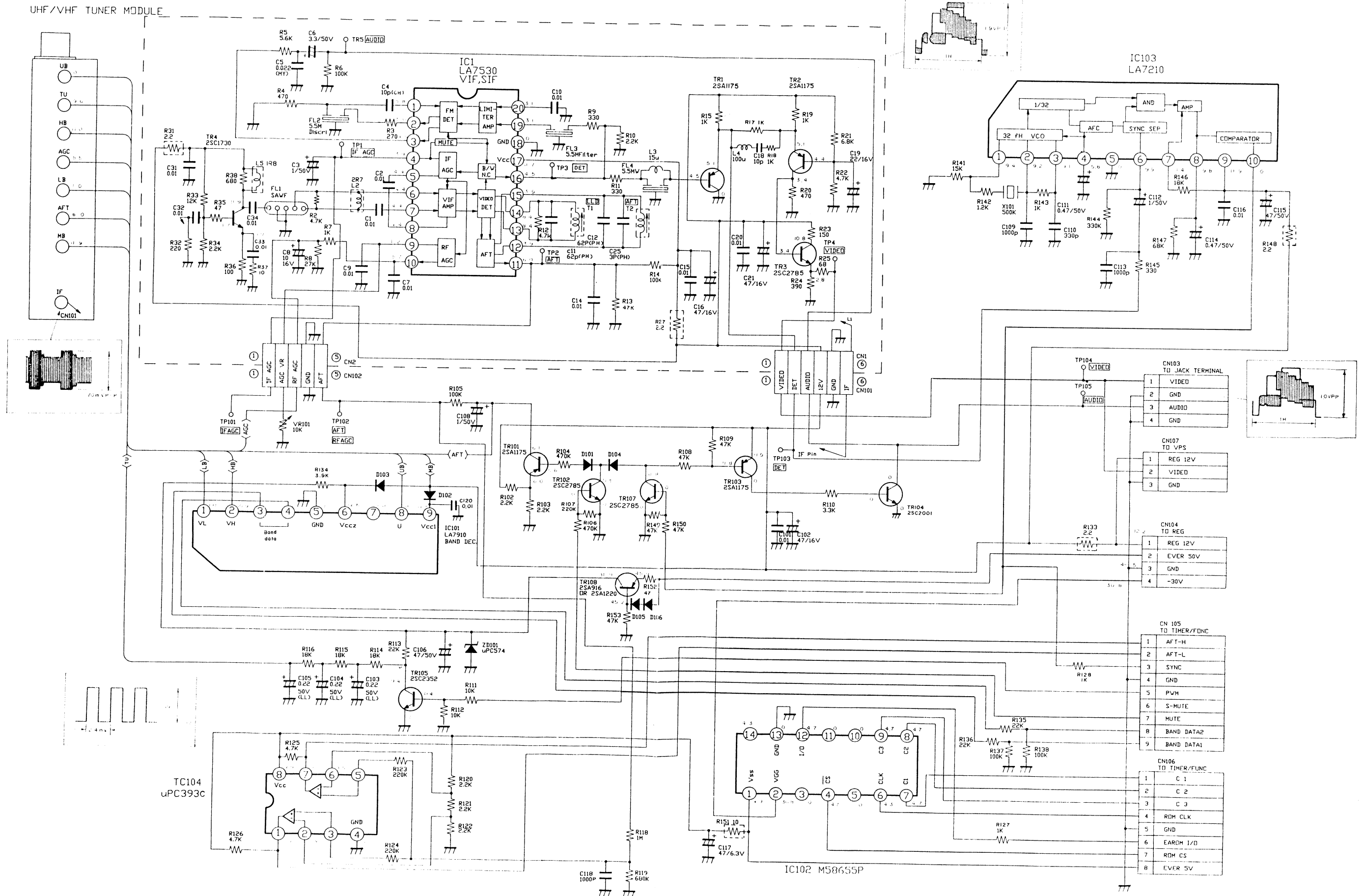
4-8. TIMER FUNCTION/SUB FUNCTION SCHEMATIC DIAGRAM (N9055G)



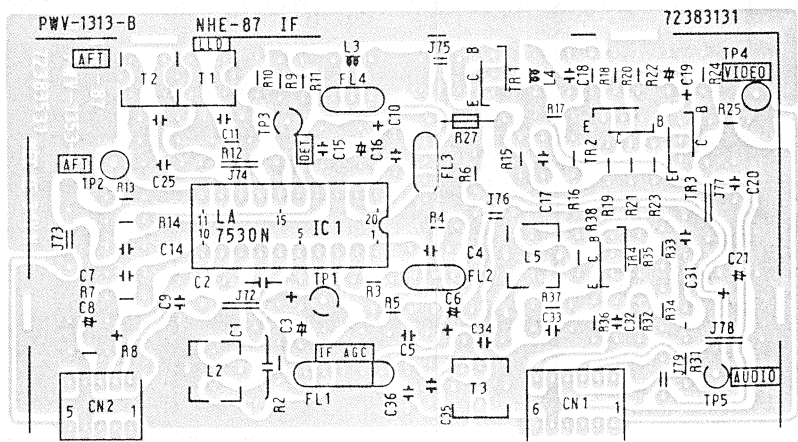
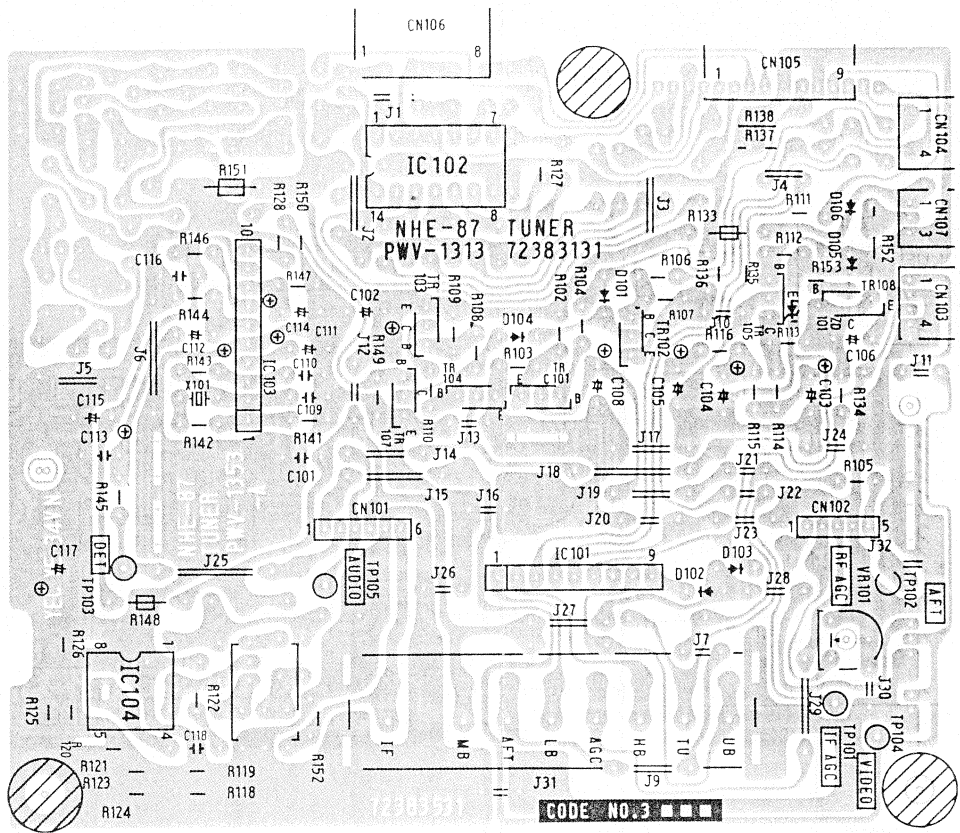
4-9. TIMER FUNCTION/SUB FUNCTION CIRCUIT BOARD (SOLDER SIDE) (N9055G)



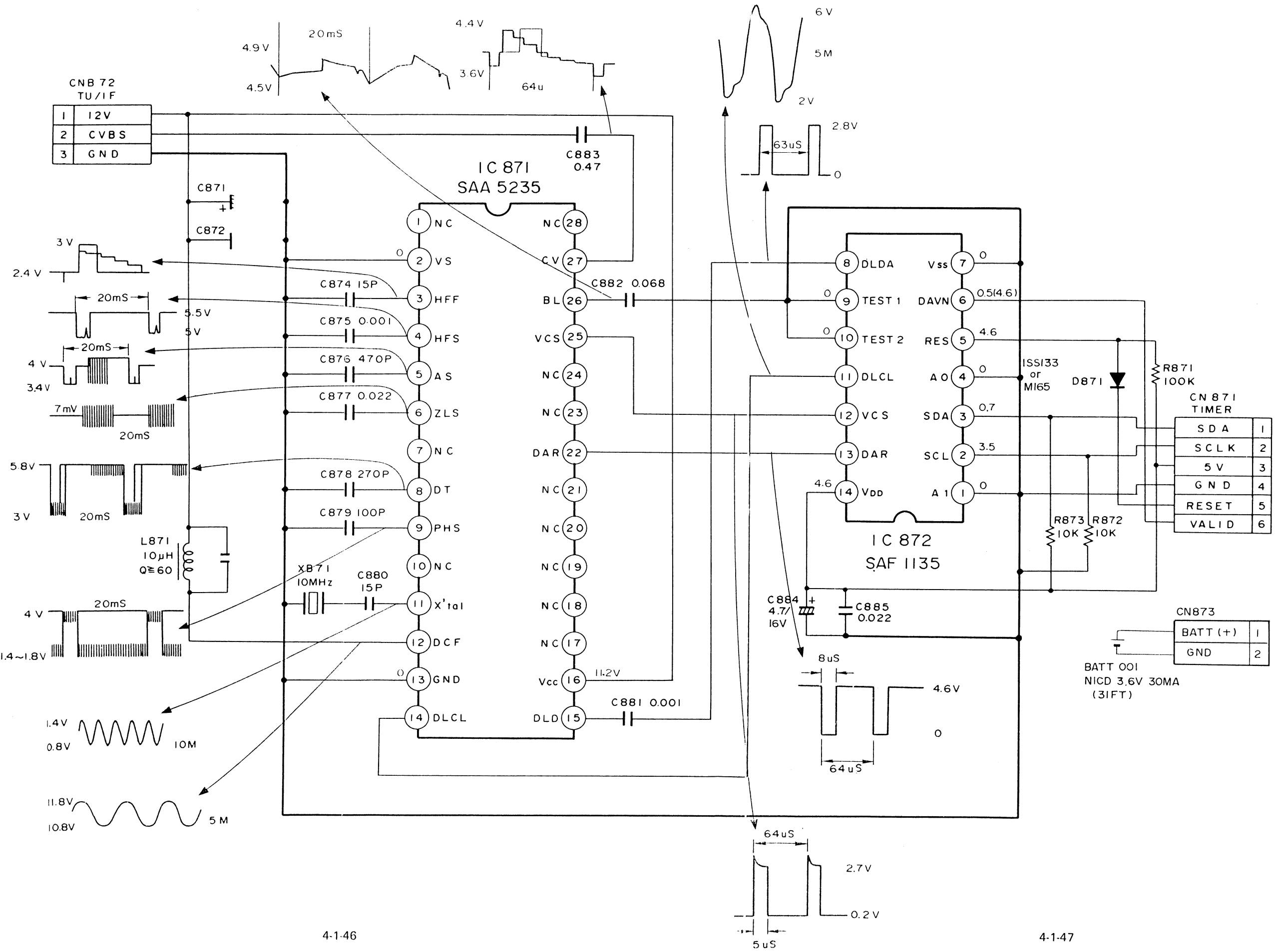
4-10. TUNER/IF SCHEMATIC DIAGRAM (N9055G)



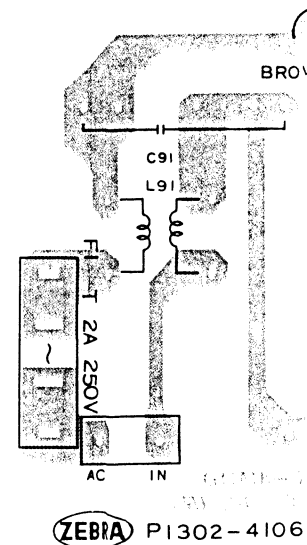
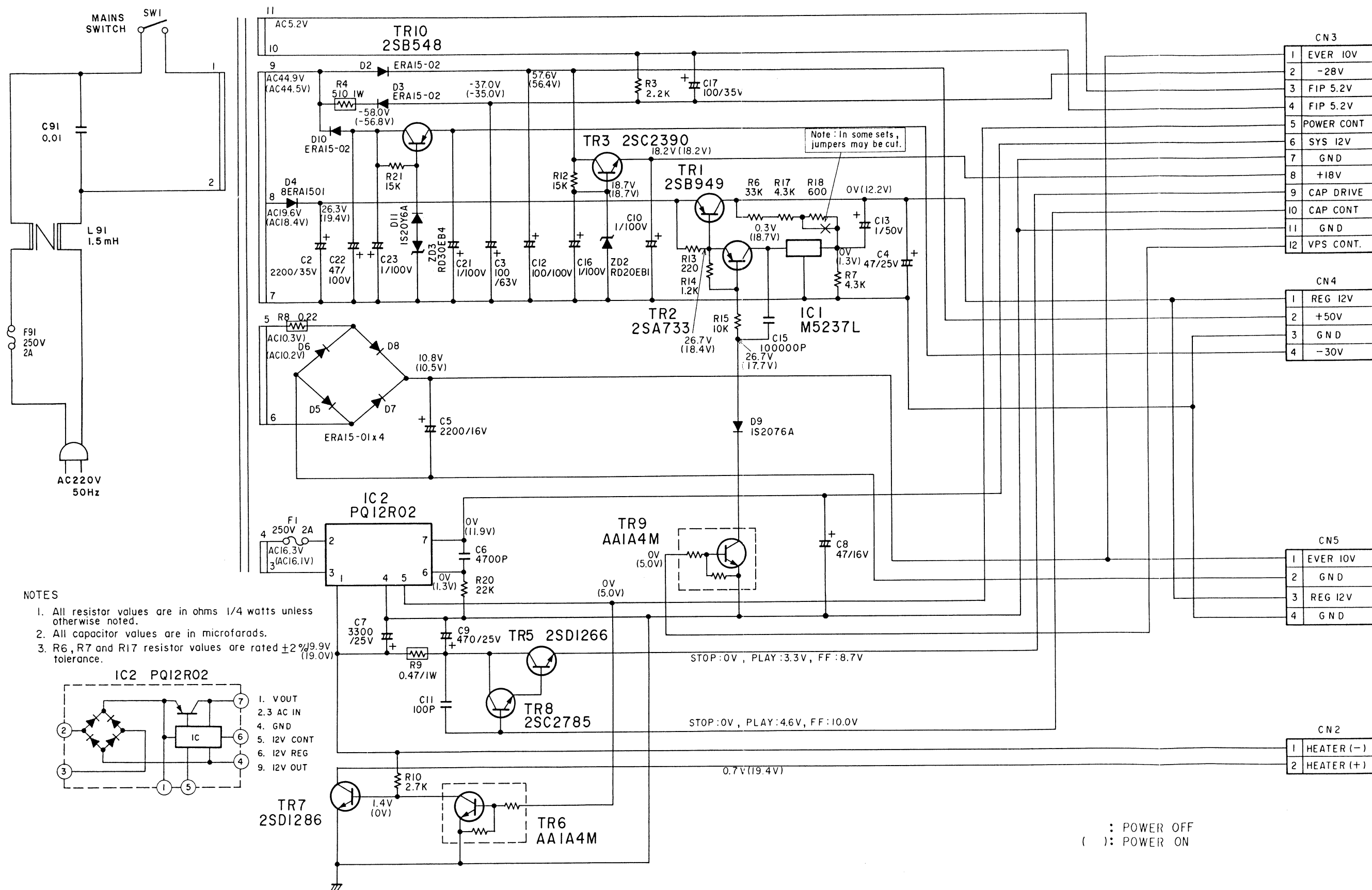
4-11. TUNER/IF CIRCUIT BOARD (SOLDER SIDE) (N9055G)

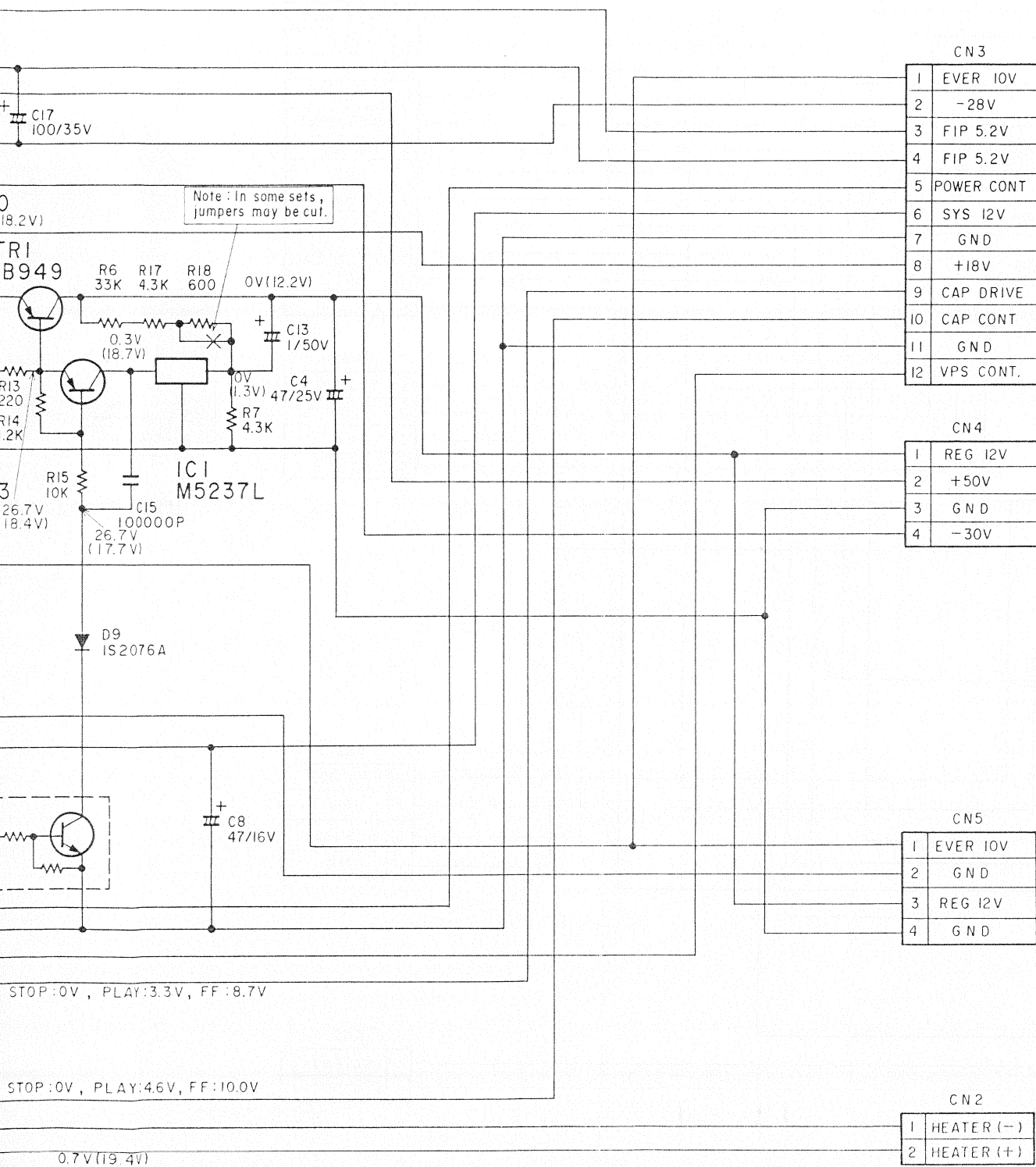


4-12. VPS DECODER SCHEMATIC DIAGRAM (N9055G)



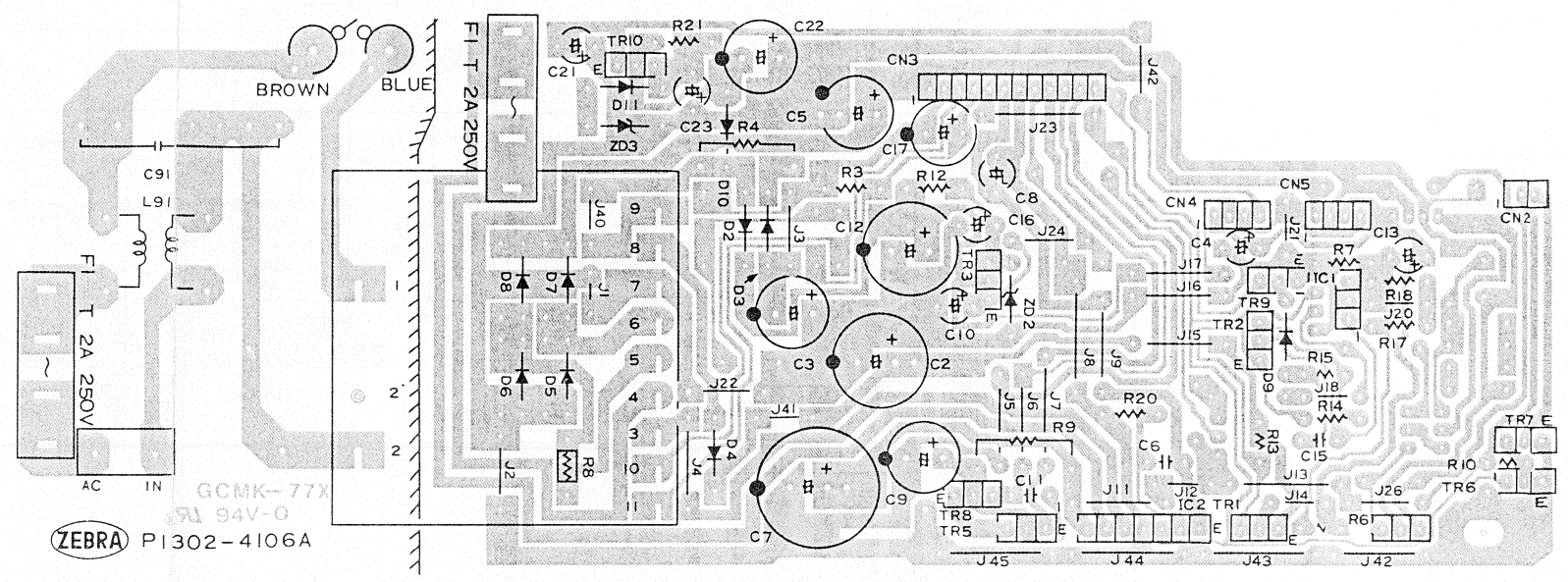
4-13. POWER/REGULATOR SCHEMATIC DIAGRAM (N9055G)





: POWER OFF
(): POWER ON

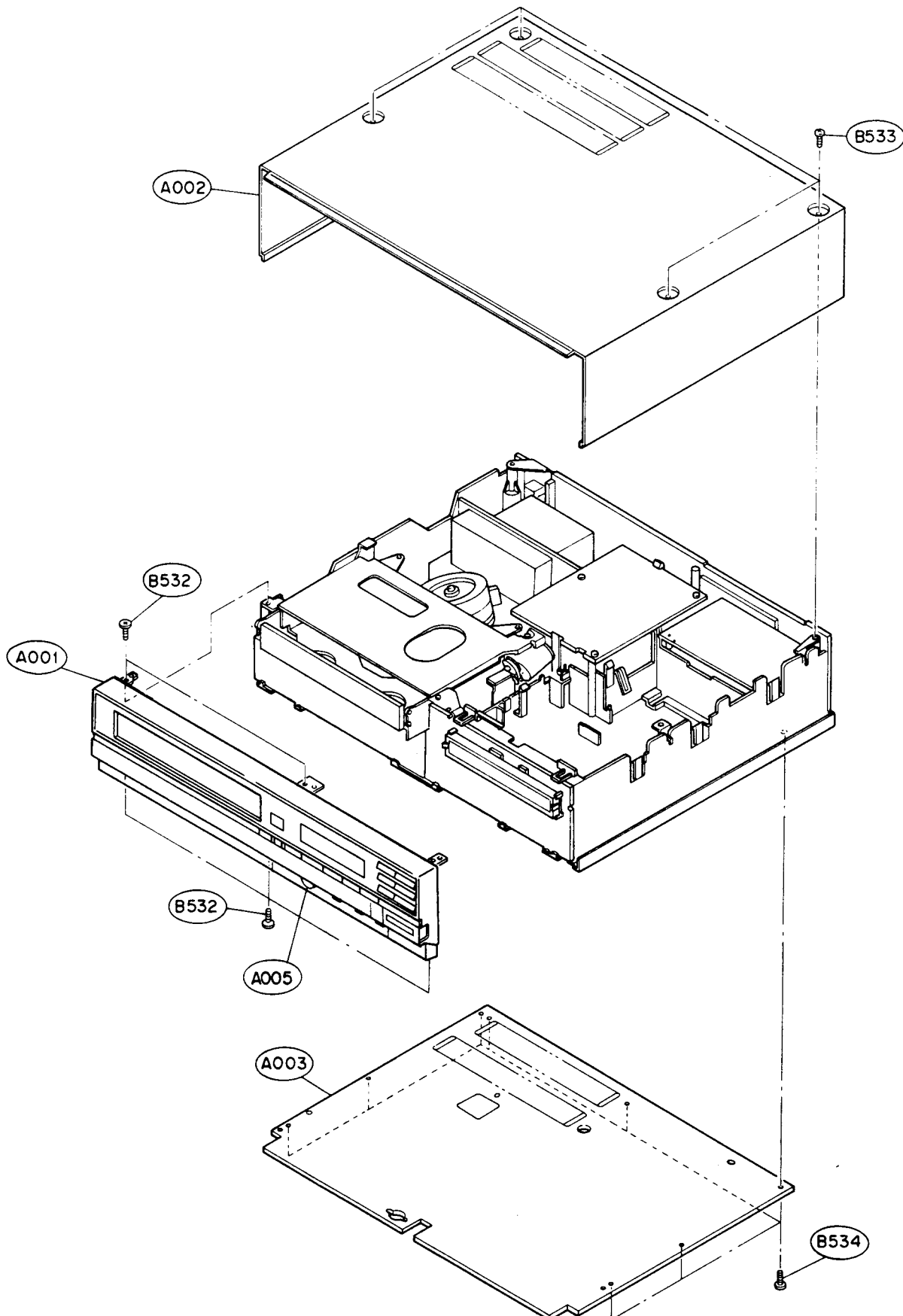
4-14. POWER/REGULATOR CIRCUIT BOARD (SOLDER SIDE) (N9055G)



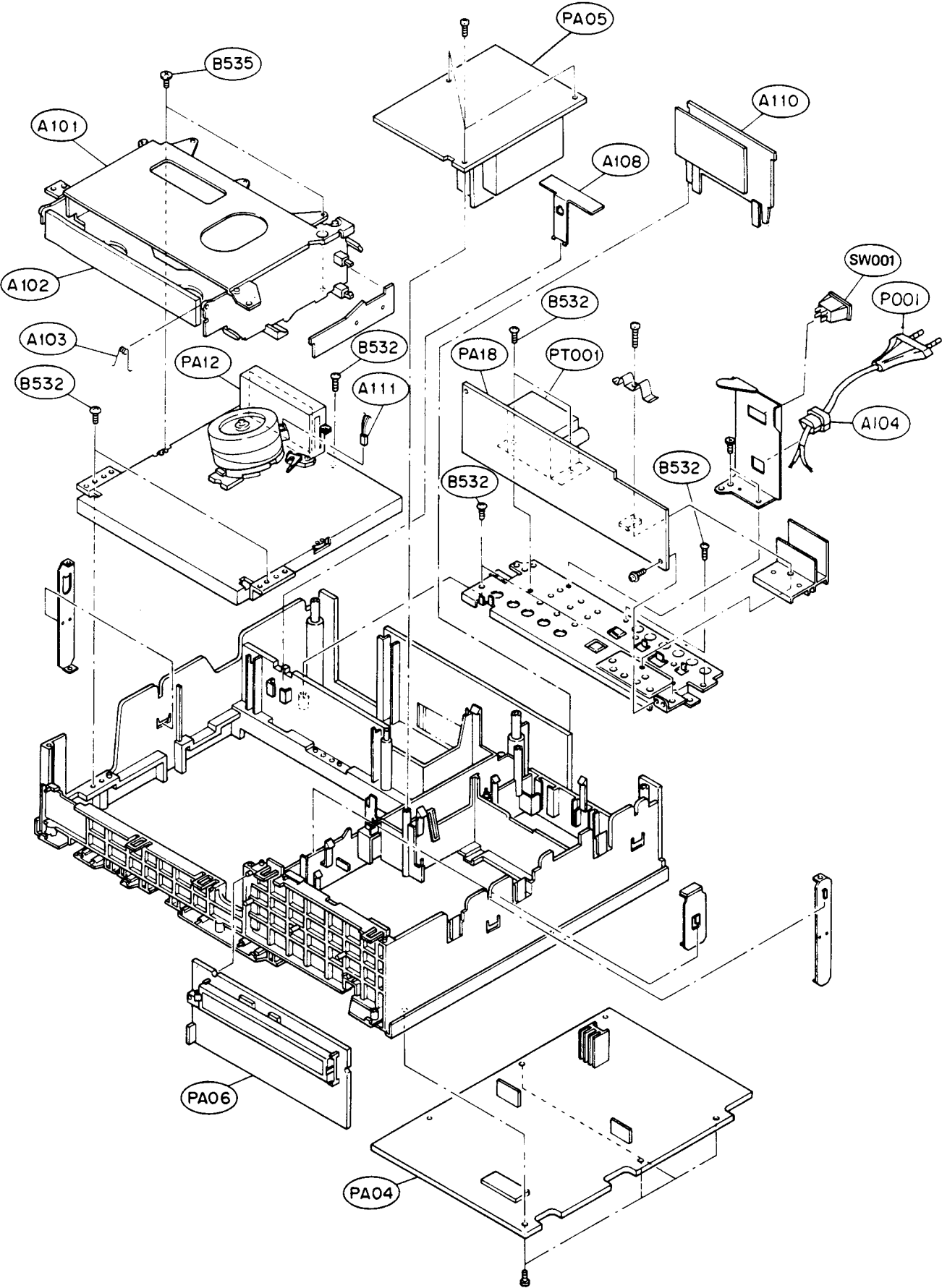
SECTION 5

EXPLODED VIEW (N9053G)

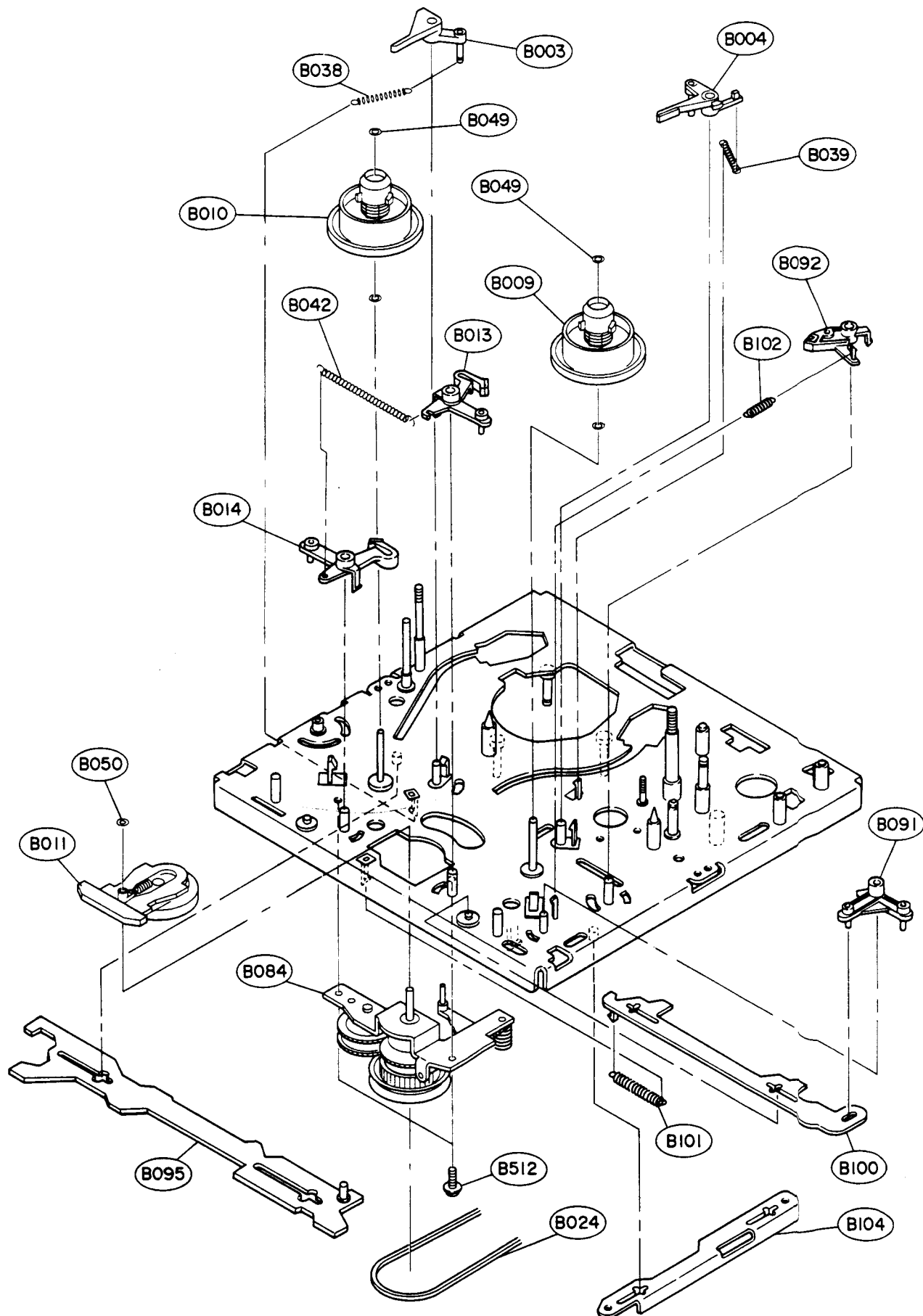
5-1. CABINET SECTION (N9053G)

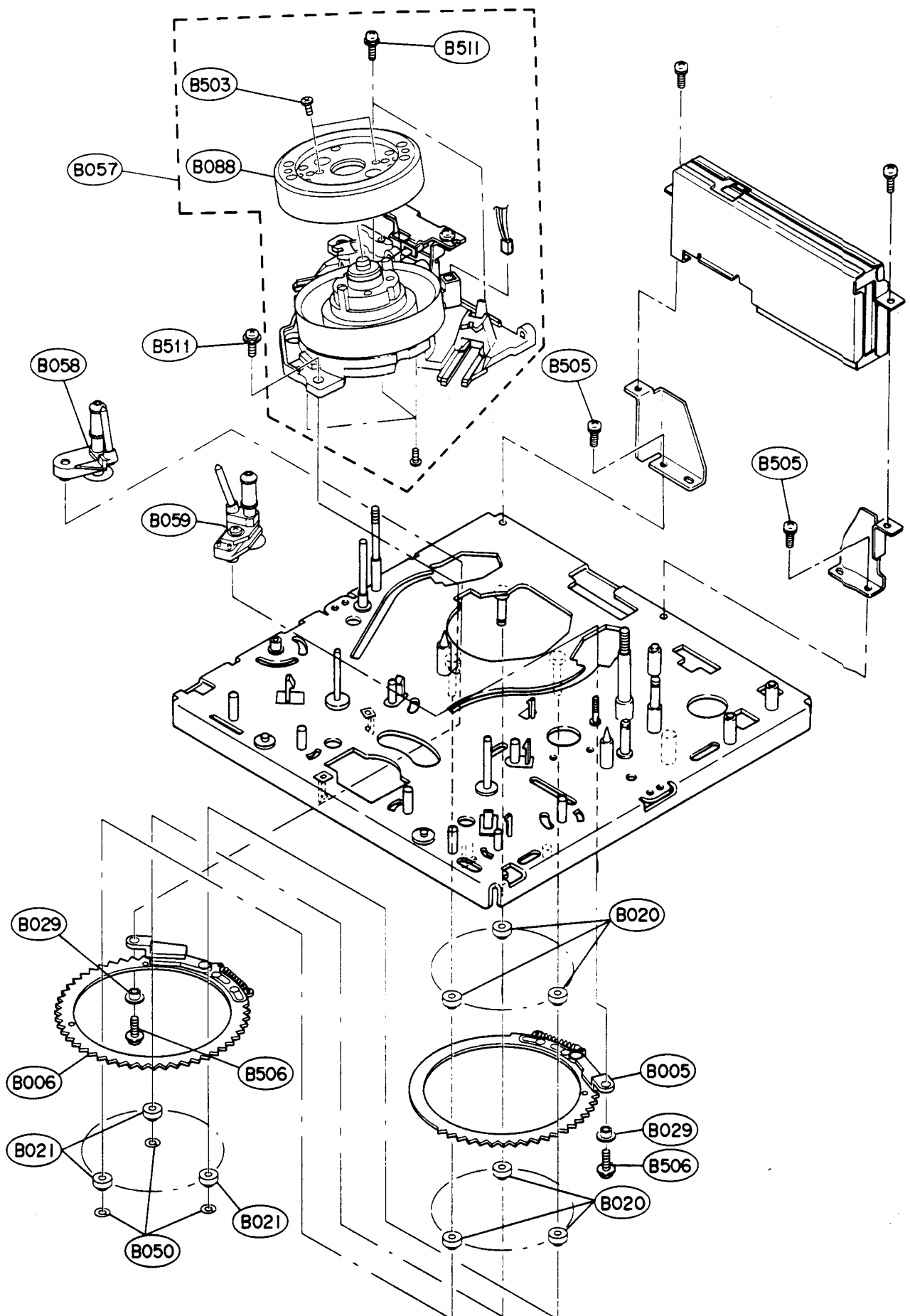


5-2. CHASSIS SECTION (N9053G)

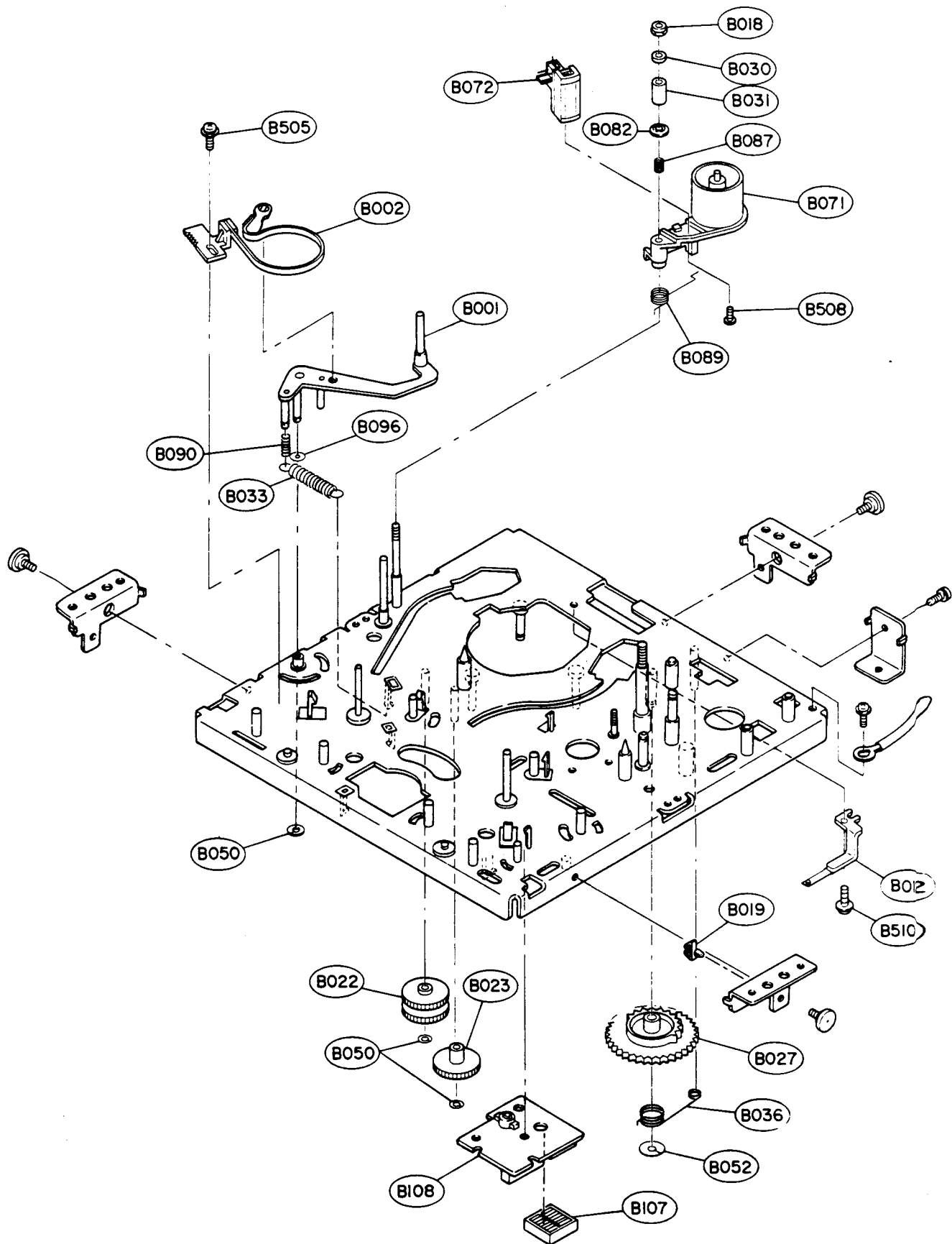


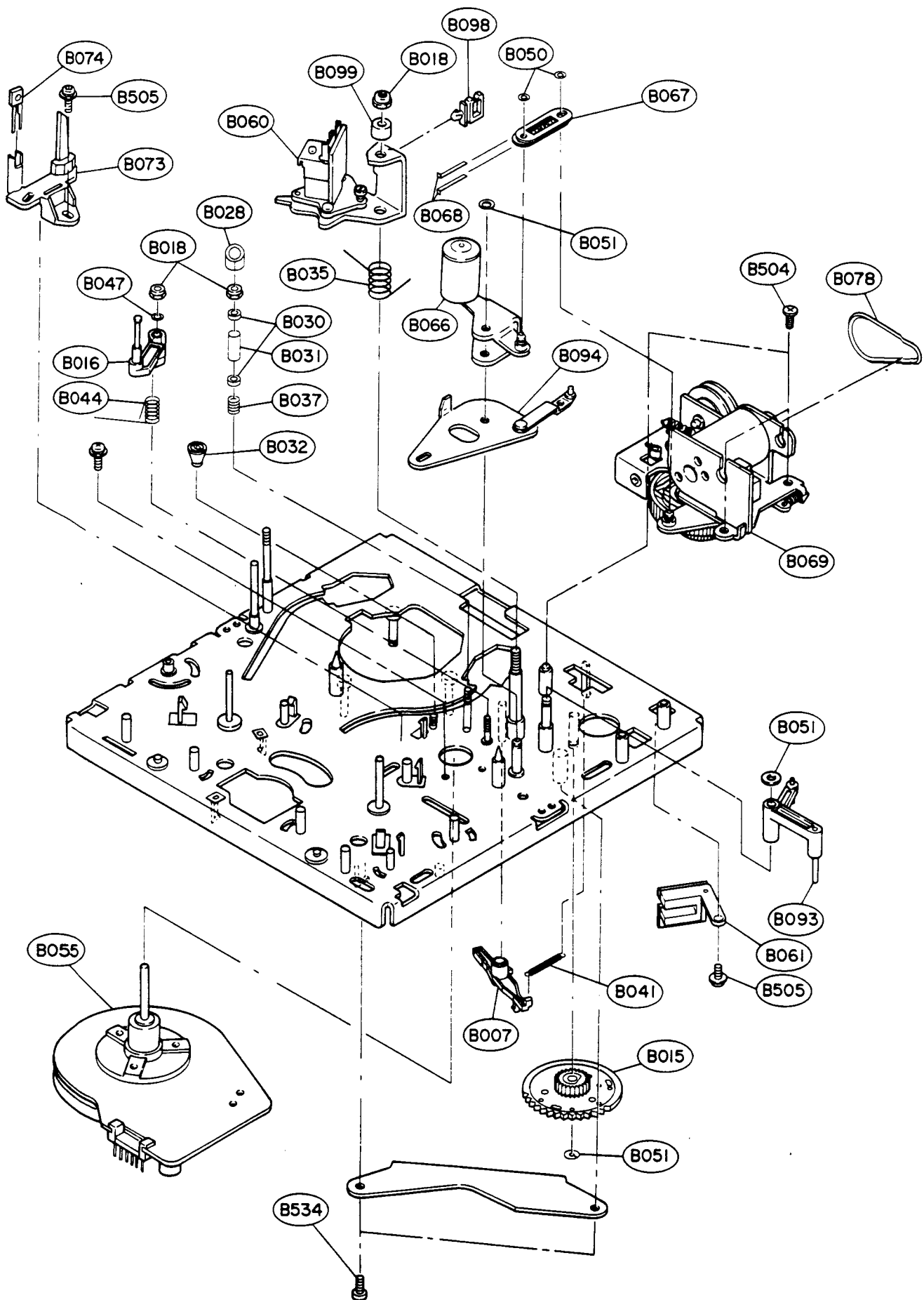
5-3. MECHANISM (I) SECTION (N9053G/N9055G)



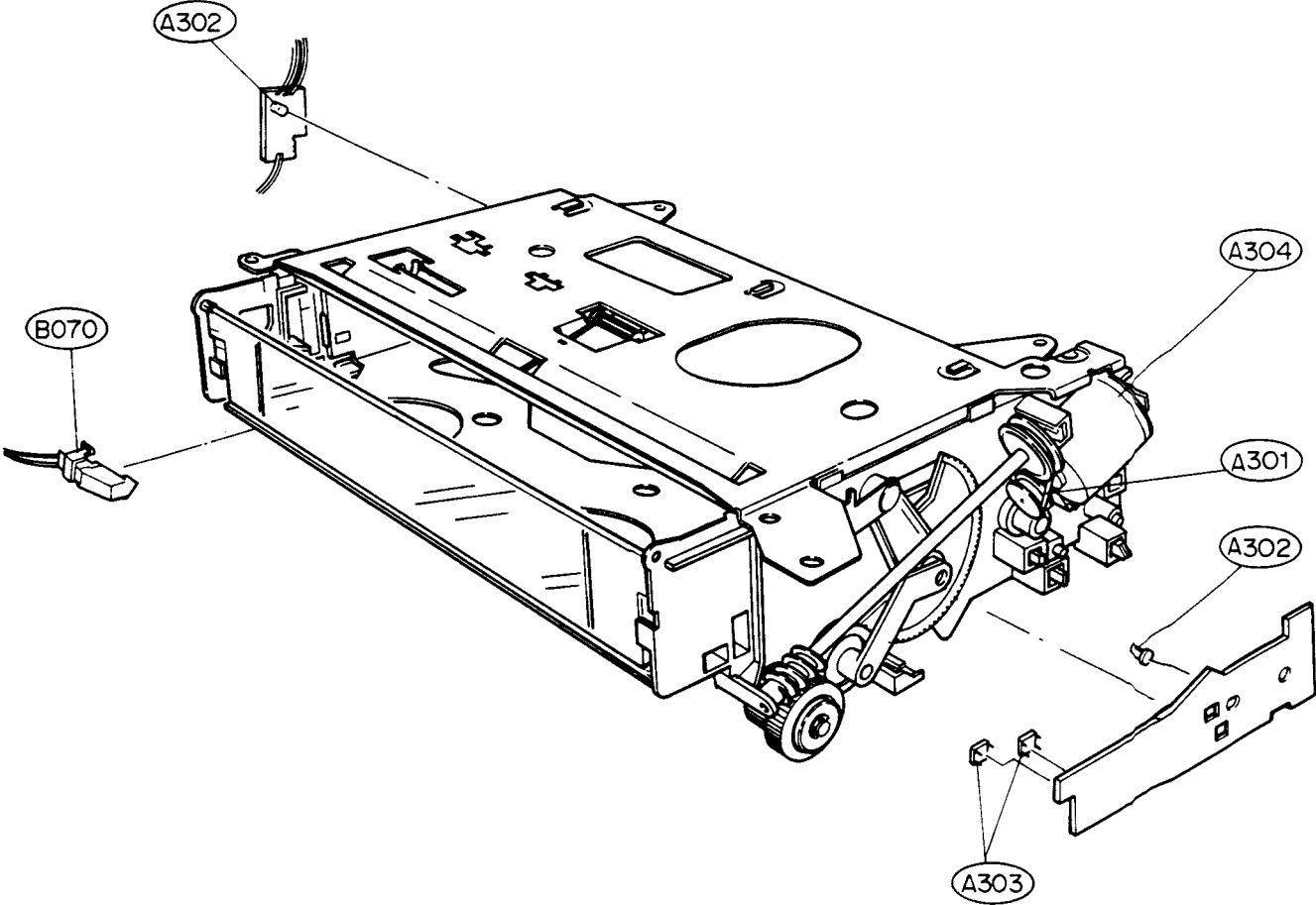


5-4. MECHANISM (II) SECTION (N9053G/N9055G)

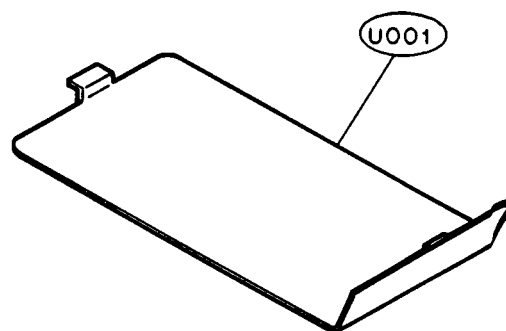
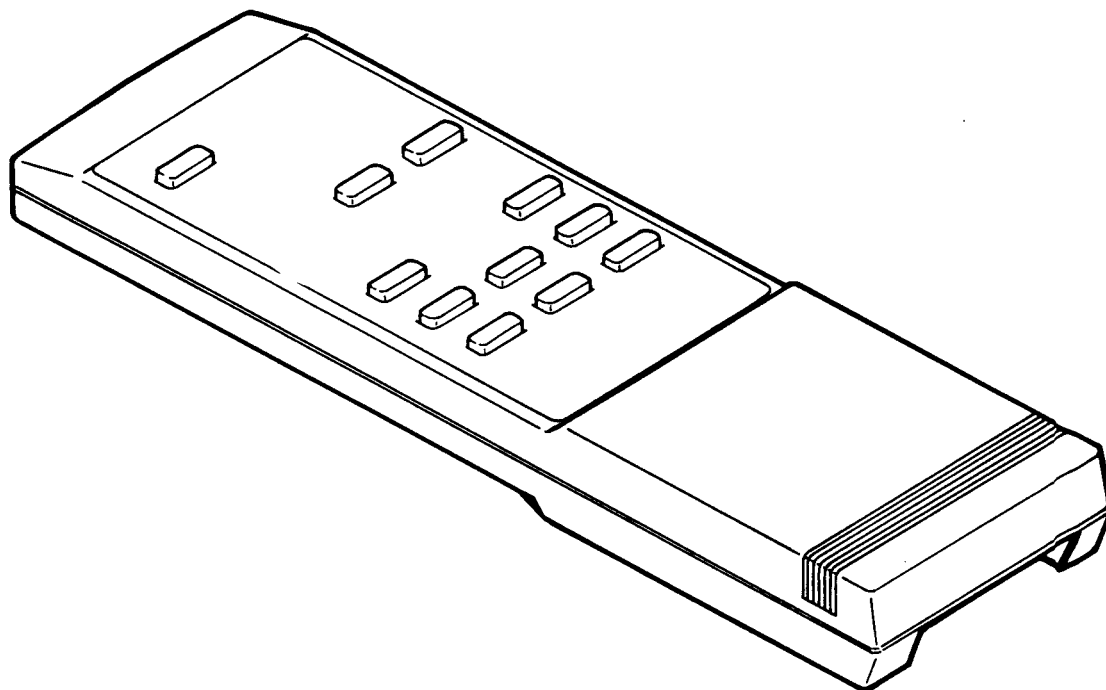




5-5. CASSETTE HOUSING SECTION (N9053G)



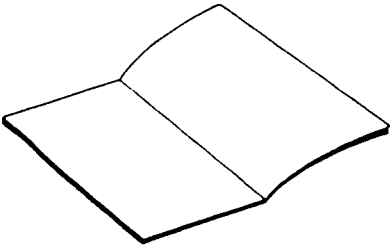
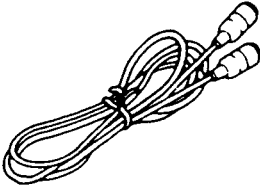
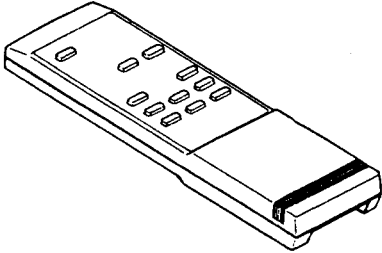
5-6. WIRELESS REMOTE CONTROL SECTION (N9053G)



WIRELESS REMOTE CONTROL PARTS LIST

SYMBOL	PART NO.	DESCRIPTION	Q'TY
U001	18940255	BATTERY CASE	1

5-7. ACCESSORIES (N9053G)

K003	K007	K008
		

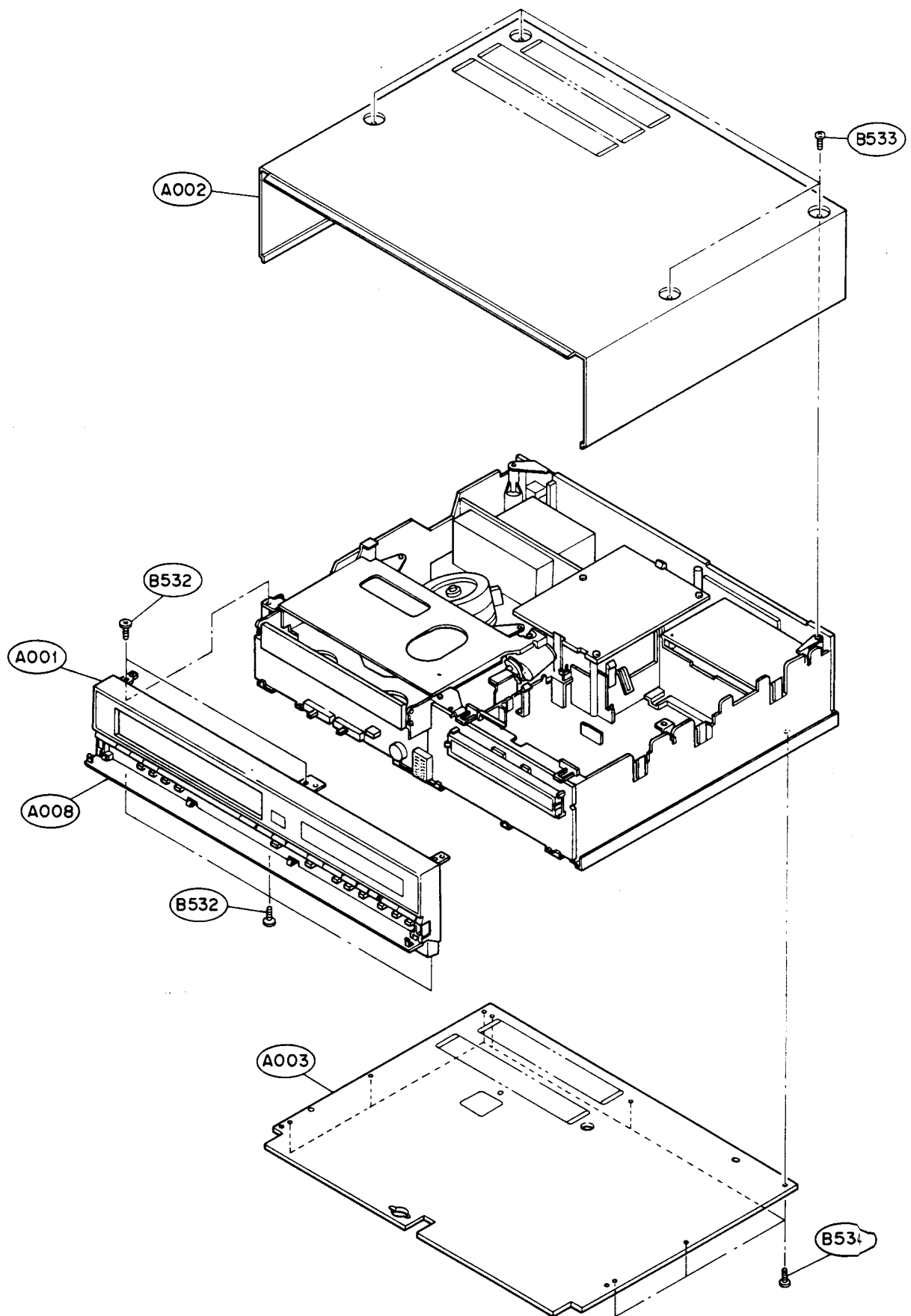
ACCESSORIES PARTS LIST

REF. NO	PART NO.	DESCRIPTION
K003	78816831	INSTRUCTION MANUAL (N9053G)
K007	79559054	IEC RF CABLE (1.2M)
K008	79799458	WIRELESS REMOTE CONTROL UNIT RB-53P

SECTION 5-1

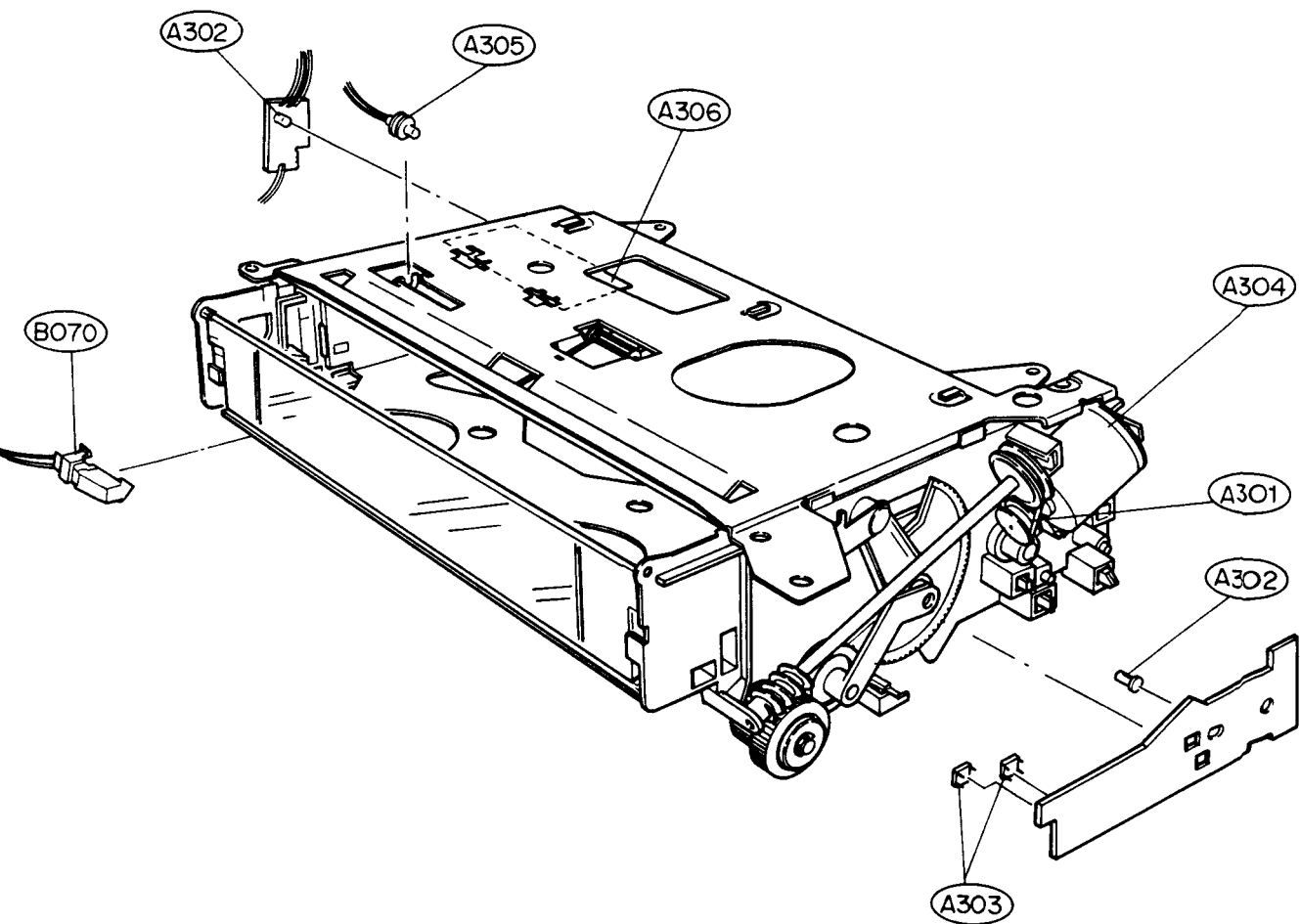
EXPLODED VIEW (N9055G)

5-1. CABINET SECTION (N9055G)

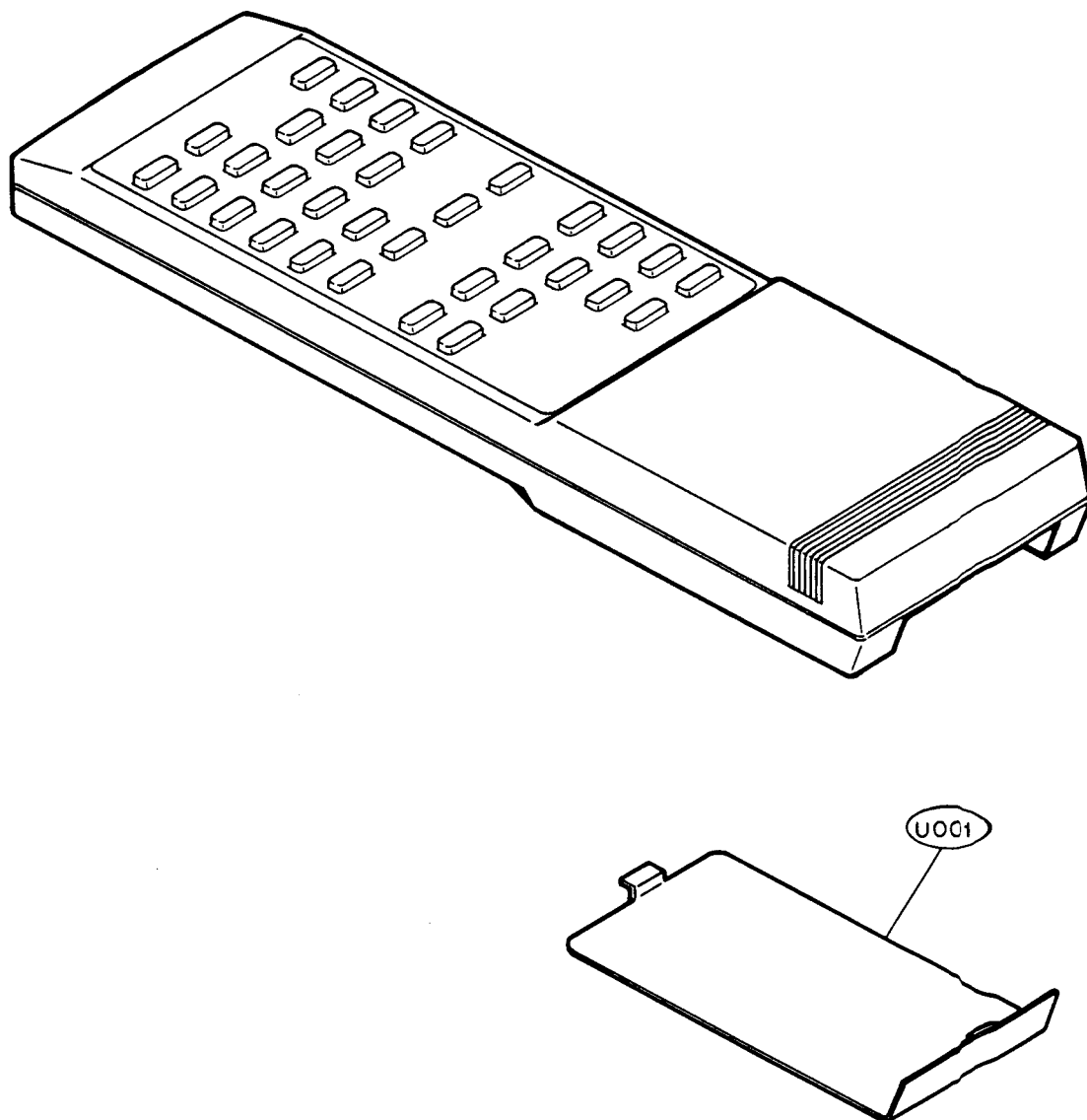


[illegible]

5-3. CASSETTE HOUSING SECTION (N9055G)



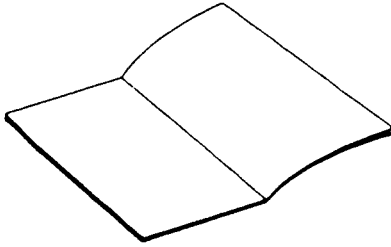
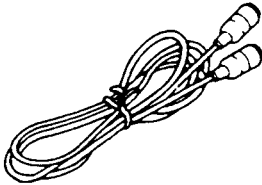
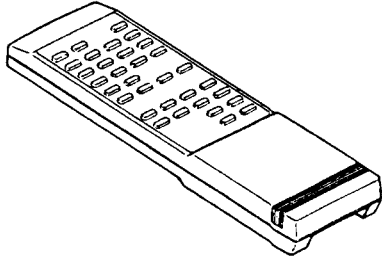
5.4. WIRELESS REMOTE CONTROL SECTION (N9055G)



WIRELESS REMOTE CONTROL PARTS LIST

SYMBOL	PART NO.	DESCRIPTION	Q'TY
U001	18940256	BATTERY CASE	1

5-5. ACCESSORIES (N9055G)

K003	K007	K008
		

REF. NO	PART NO.	DESCRIPTION
K003	78817031	INSTRUCTION MANUAL (N9055G)
K007	79559054	IEC RF CABLE (1.2M)
K008	79799460	WIRESS REMOTE CONTROL UNIT 55P

SECTION 6

REPLACEMENT PARTS LIST (N9053G)

87 07. 08

S/S/A/V PWB ASSY	6-2
PRE AMP PWB ASSY	6-5
JACK TERMINAL PWB ASSY	6-6
TIMER/FUNCTION PWB ASSY	6-7
TUNER/IF PWB ASSY.	6-7
POWER/REGULATOR ASSY.	6-9
PACKING PARTS.	6-10
MECHANICAL PARTS	6-10
CASSETTE HOUSING ASSEMBLY	6-12
SET ASSEMBLY.	6-12
CHASSIS ASSEMBLY	6-12

MODEL : S/S/A/V PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ICS ***			
IC1605	37101117	IC UPC324C	1
IC1604	37101127	IC UPC-393C	1
IC1103	37101246	IC BA6793	1
IC1402	37101249	BA7025L (SECAM DET)	1
IC1206	37101289	IC HA17805	1
IC1201	37101311	IC LA7098 (AUDIO)	1
IC1201	37101312	IC AN3215K (REC Y-PROCESS)	1
IC1202	37101313	IC AN3321K (PB Y PROCESS)	1
IC1602 IC1603	37101323	IC BA15218 (GP AMP)	2
IC1208	37101324	IC LA7308	1
IC1401	37101334	IC PAL CHROMA(6163,6367)	1
IC1403	37151254	IC TK150612	1
IC1104	37151267	MOS MM1280R VOLTAGE DET	1
IC1102	37151334	IC BA6246	1
IC1601	37151336	MOS BU2733S (PAL SERVO)	1
IC1101	37151345	MOS UPE7520RCW-116 N9053	1
IC1606	37901127	IC UPC7805H ACCESSORIES	1
*** TRANSISTORS ***			
TR1001	35055712	TR 2SC2001 L	1
TR1101 TR1203 TR1209	35501931	TR 2SC2785(E,F,H,J)AT	14
TR1211 TR1235 TR1236			
TR1255 TR1402 TR1404			
TR1407 TR1409 TR1410			
TR1411 TR1601			
TR1206 TR1207 TR1212	35502716	TR,BA1F4M	11
TR1221 TR1234 TR1243			
TR1247 TR1254 TR1413			
TR1415 TR1419			
TR1103 TR1104 TR1603	35502717	TR,BA1L4M	4
TR1604			
TR1403 TR1416	355K1131	TR,2SA1175 (E,F,H,J)	2
TR1242	355K2110	BN1F4M (A,2PK) AT	1
TR1102	355K2111	BN1L4M (A,47K) AT	1
TR1208 TR1213 TR1220	355K2113	DTR UN4122(PNP 4.7K) AT	5
TR1253 TR1418			
*** DIODES ***			
D1101 D1601	360KAC09	DIODE 152473 AT20	1
D1102 D1103 D1105	360KAC25	DIODE,1SS133	10
D1106 D1217 D1223			
D1224 D1402 D1601			
D1604 D1605 D1606			

MODEL : S/S/A/V PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
D1607 D1608 D1609	360KAC25	DIODE,1SS133	16
D1614			
D1202	360KC972	DIODE MA165 AT26	1
D1108	36001025	DIODE 1SS133	1
ZD1101	36003112	DIODE, RD9.1EB-3	1
ZD1602	369KE167	ZENER DIODE RD6.2EB2,AT26	1
ZD1603	369KE198	ZENER DIODE RD16EB2,AT26	1
ZD1102	369KE445	ZENER DIODE RD12JP2,AT26	1
*** VARIABLE RESISTORS ***			
X1101	39080022	4.19MHZ RESONATOR	1
RM1101	39906105	R,BLOCK220K*4 1.8MM 1/16W	1
RM1102	39906130	R,BLOCK100K*7 1.8MM 1/16W	1
VR1201 VR1802	41951144	R,VARIABLE 2.2K,B	2
VR1213	41951146	R,VARIABLE 4.7K,B	1
VR1205	41951147	R,VARIABLE 6.8K,B	1
VR1402 VR1801	41951148	R,VARIABLE 10K,B	2
VR1204 VR1210	41951150	R,VARIABLE 22K,B	2
VR1202 VR1203 VR1206	41951152	R,VARIABLE 47K,B	3
VR1601 VR1602	41951154	R,VARIABLE 100K,B	2
VR1603	41951157	R,VARIABLE 330K,B	1
VR1401	41951249	R,VARIABLE 2.2KB	1
*** COILS & FILTERS ***			
L1801 L1802	610E2100	FILTER COIL 822J,AT	2
L1803	610G1537	FILTER COIL 470UH AT(S)	1
L1205 L1404	610G1545	FILTER COIL 220UH	2
L1206 L1207 L1409	610G1819	FILTER COIL C405 15UH,AT	3
L1203 L1219 L1401	610G1825	FILTER COIL 0405 47UH,AT	4
L1408			
L1202	610G1826	FILTER COIL 0405 56UH,AT	1
L1204 L1210 L1211	610G1829	FILTER COIL 0405 100UH,AT	9
L1216 L1217 L1406			
L1407 L1410 L1411			
L1403	610G1833	FILTER COIL 0405 220UH,AT	1
L1402	610G1835	FILTER COIL 0405 330UH,AT	1
L1601	61072132	COIL,FILTER 1COUH	1
CF1401	61137009	CERAMIC FILTER 4.16MHZ	1
DL1401	61551C46	DELAY (COMB FILTER)	1
DL1202	61551C80	1HDLL(PAL,NOISE CANCEL)	1
FL1201	61827C3P	3.2MHZ L.P.F	1
FL1402	61827C66	PAL 2IN1FILTER(5.06,1.4M)	1
FL1401	61827C67	4.43MHZ BPF(3435)	1
T1401	61828C14	LC FILTER (PKHZ TRAP)	1
T1801	61911215	OSC COIL	1

MODEL : S/S/A/V PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***			
X1401	64004143	X'TAL 4.43MHZ (W/C-ADJ)	1
*** APPEARANCE PARTS ***			
	16286431	PWB HINGE	1
	16288281	WIRERAF PCST (STYLE PIN)	3
	16288391	PWB BRACKET(H7)	1
	16582421	HEAT SINK(1)	2
	16875531	SCREW M3*8*15BF	2
*** RESISTORS ***			
R1822	401KE625	R,CARBON 10H 5X 1/6W	1
R1821	401KE631	R,CARBON 18H 5X 1/6W	1
R1437	401KE641	R,CARBON 47H 5X 1/6W	1
R1816	401KE643	R,CARBON 56H 5X 1/6W	1
R1248	401KE651	R,CARBON 120H 5X 1/6W	1
R1245	401KE653	R,CARBON 150H 5X 1/6W	1
R1229 R1415 R1660	401KE657	R,CARBON 220H 5X 1/6W	3
R1246	401KE659	R,CARBON 270H 5X 1/6W	1
R1421	401KE661	R,CARBON 330H 5X 1/6W	1
R1413 R1420	401KE665	R,CARBON 470H 5X 1/6W	2
R1236	401KE666	R,CARBON 510H 5X 1/6W	1
R1249 R1805	401KE667	R,CARBON 560H 5X 1/6W	2
R1225 R1235 R1240	401KE669	R,CARBON 680H 5X 1/6W	4
R1636			
R1418	401KE670	R,CARBON 750H 5X 1/6W	1
R1228 R1429 R1689	401KE671	R,CARBON 820H 5X 1/6W	3
R1213 R1219 R1233	401KE673	R,CARBON 1.0K 5X 1/6W	19
R1310 R1363 R1414			
R1416 R1417 R1423			
R1424 R1436 R1438			
R1447 R1454 R1629			
R1640 R1648 R1807			
R1815			
R1220 R1252 R1258	401KE675	R,CARBON 1.2K 5X 1/6W	6
R1412 R1419 R1812			
R1239 R1241 R1289	401KE677	R,CARBON 1.5K 5X 1/6W	5
R1299 R1313			
R1215 R1218 R1282	401KE679	R,CARBON 1.8K 5X 1/6W	7
R1283 R1404 R1641			
R1659			
R1148 R1151 R1207	401KE681	R,CARBON 2.2K 5X 1/6W	11
R1210 R1211 R1247			
R1425 R1441 R1444			
R1446 R1814			

MODEL : S/S/A/V PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
R1403 R1624 R1625	401KE683	R,CARBON 2.7K 5X 1/6W	3
R1622 R1646 R1655	401KE685	R,CARBON 3.3K 5X 1/6W	4
R1666			
R1802	401KE687	R,CARBON 3.9K 5X 1/6W	1
R1280 R1411 R1430	401KE689	R,CARBON 4.7K 5X 1/6W	4
R1809			
R1250 R1367 R1428	401KE691	R,CARBON 5.6K 5X 1/6W	10
R1432 R1433 R1442			
R1451 R1608 R1663			
R1664			
R1405 R1406 R1643	401KE693	R,CARBON 6.8K 5X 1/6W	4
R1644			
R1426 R1657	401KE695	R,CARBON 8.2K 5X 1/6W	2
R1813	401KE696	R,CARBON 9.1K 5X 1/6W	1
R1105 R1109 R1201	401KE697	R,CARBON 10K 5X 1/6W	10
R1216 R1244 R1256			
R1298 R1305 R1312			
R1448			
R1410 R1650	401KE699	R,CARBON 12K 5X 1/6W	2
R1121 R1122 R1221	401KE701	R,CARBON 15K 5X 1/6W	7
R1633 R1634 R1652			
R1653			
R1626 R1631 R1632	401KE703	R,CARBON 18K 5X 1/6W	4
R1637			
R1203 R1237 R1238	401KE705	R,CARBON 22K 5X 1/6W	8
R1304 R1445 R1803			
R1819			
R1300 R1301 R1658	401KE709	R,CARBON 33K 5X 1/6W	3
R1620	401KE711	R,CARBON 39K 5X 1/6W	1
R1103 R1107 R1606	401KE713	R,CARBON 47K 5X 1/6W	4
R1801			
R1627	401KE715	R,CARBON 56K 5X 1/6W	1
R1150 R1357 R1604	401KE717	R,CARBON 68K 5X 1/6W	3
R1603 R1638	401KE719	R,CARBON 82K 5X 1/6W	2
R1108 R1110 R1111	401KE721	R,CARBON 100K 5X 1/6W	14
R1408 R1409 R1422			
R1434 R1615 R1616			
R1628 R1639 R1642			
R1647 R1649			
R1635	401KE723	R,CARBON 120K 5X 1/6W	1
R1443	401KE725	R,CARBON 150K 5X 1/6W	1
R1222 R1609	401KE727	R,CARBON 180K 5X 1/6W	2
R1613	401KE731	R,CARBON 270K 5X 1/6W	1
R1618	401KE737	R,CARBON 470K 5X 1/6W	1
R1104	401KE739	R,CARBON 560K 5X 1/6W	1
R1804	401KE741	R,CARBON 680K 5X 1/6W	1
R1427 R1645 R1654	401KE745	R,CARBON 1.0M 5X 1/6W	3
R1811	40105674	R,CARBON 1.1K 5X 1/6W	1
R1455	40105709	R,CARBON 33K 5X 1/6W	1

MODEL : S/S/A/V PWE ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
R1808	40105715	R,CARBON 56K 5% 1/6W	1
R1101	40351109	R,METAL 2.2H 5% 1W	1
R1602	40809801	R,FUSE 1.0H 5% 1/2W	1
R16C1	40809841	R,FUSE 47H 5% 1/2W	1
R1823	409HB601	R,CARBON 1.0H 5% 1/4W	1
R1366 R1656	409HB649	R,CARBON 100H 5% 1/4W	2
R1452	409HB657	R,CARBON 220H 5% 1/4W	1
R1253	409HB659	R,CARBON 270H 5% 1/4W	1
R1106	409HB665	R,CARBON 470H 5% 1/4W	1
R16F8	409HB670	R,CARBON 750H 5% 1/4W	1
R1156 R1157 R1158	409HB673	R,CARBON 1.0K 5% 1/4W	3
R1126 R1127 R1128	409HB681	R,CARBON 2.2K 5% 1/4W	19
R1129 R1130 R1131			
R1132 R1133 R1136			
R1137 R1138 R1139			
R1140 R1141 R1142			
R1144 R1145 R1146			
R1149			
R1675	409HB685	R,CARBON 3.3K 5% 1/4W	1
R1665	409HB691	R,CARBON 5.6K 5% 1/4W	1
R1607	409HB693	R,CARBON 6.8K 5% 1/4W	1
R1117 R1135 R1153	409HB697	R,CARBON 10K 5% 1/4W	4
R1362			
R1401 R1605	409HB699	R,CARBON 12K 5% 1/4W	2
R1134 R1407	409HB701	R,CARBON 15K 5% 1/4W	2
R1204 R1303 R1431	409HB705	R,CARBON 22K 5% 1/4W	3
R1123 R1124	409HB713	R,CARBON 47K 5% 1/4W	2
R1619	409HB717	R,CARBON 68K 5% 1/4W	1
R1617	409HB718	R,CARBON 75K 5% 1/4W	1
R1112 R1113 R1114	409HB721	R,CARBON 100K 5% 1/4W	7
R1119 R1120 R1125			
R1610			
R1651	409HB725	R,CARBON 150K 5% 1/4W	1
R1623	409HB729	R,CARBON 220K 5% 1/4W	1
R1118	409HB739	R,CARBON 560K 5% 1/4W	1
R1611	409HB745	R,CARBON 1.0M 5% 1/4W	1
R1810	409HB749	R,CARBON 1.5M 5% 1/4W	1
R1630	409HB751	R,CARBON 1.8M 5% 1/4W	1
R1612	409HB761	R,CARBON 4.7M 5% 1/4W	1
R1102	40912161	R,CARBON 330H 5% 1/2W	1
*** CAPACITORS ***			
C1101 C1102 C1110	421A0425	C,CERAMIC 50V 0.01UF	3
C1111 C1119	421A0429	C,CERAMIC 50V 0.022UF	2
C1253	421C0C15	C,CERAMIC 50V 12 PF	1
C1251 C1421	421C0C17	C,CERAMIC 50V 15 PF	2

MODEL : S/S/A/V PWP ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
C1266 C1268	421C0C19	C,CERAMIC 50V 18 PF	2
C1210 C1254	421C0C27	C,CERAMIC 50V 39 PF	2
C1402	421C0C31	C,CERAMIC 50V 56 PF	1
C1206 C1236	421C0C35	C,CERAMIC 50V 82 PF	2
C1118 C1212 C1625	421C0C37	C,CERAMIC 50V 100PF	3
C1227 C1231	421C0C38	C,CERAMIC 50V 120PF	2
C1242	421C0C39	C,CERAMIC 50V 150PF	1
C1626	421C0C41	C,CERAMIC 50V 220PF	1
C1614	421C0C42	C,CERAMIC 50V 270PF	1
C1113 C1114 C1115	421C0C43	C,CERAMIC 50V 330PF	3
C1413	421C0C44	C,CERAMIC 50V 390PF	1
C1229 C1646	421C0C45	C,CERAMIC 50V 470PF	2
C1245	421C0C47	C,CERAMIC 50V 680PF	1
C1107 C1205 C1407	421C0C49	C,CERAMIC 50V 1000PF	6
C1622 C1645 C1826			
C1305 C1406	421C0C09	C,CERAMIC 50V 4.7 PF	2
C1411	421C0C39	C,CERAMIC 50V 150PF	1
C1410	421C0C240	C,CERAMIC 50V 180PF	1
C1419	421C0C241	C,CERAMIC 50V 220PF	1
C1420	421C0C245	C,CERAMIC 50V 470PF	1
C1431	421C0C453	C,CERAMIC 16V 2200PF	1
C1648	421C0C455	C,CERAMIC 16V 3300PF	1
C1105 C1106 C1109	421C0C461	C,CERAMIC 16V 0.01UF	27
C1209 C1211 C1221			
C1222 C1232 C1244			
C1246 C1250 C1251			
C1252 C1255 C1256			
C1257 C1258 C1401			
C1408 C1415 C1416			
C1423 C1425 C1427			
C1429 C1443 C1444			
C1208 C1240 C1275	421C0C863	C,CERAMIC 25V 0.022UF	9
C1288 C1294 C1424			
C1435 C1437 C1445			
C1446	421C0C0C5	C,CERAMIC 50V 220PF	1
C1409 C1414	42110433	C,CERAMIC 50V 0.047UF	2
C1654	42132963	C,CERAMIC 25V 0.022UF	1
C1827	42331052	C,CERAMIC 50V 200PF	1
C1104	429C0333	C,CERAMIC 25V 0.047UF	1
C1249	429C0337	C,CERAMIC 25V 0.1UF	1
C1627	429G6908	C FILM 50V 0.039UF	1
C1605 C1629	429G6912	C FILM 50V 0.082UF	2
C1290 C1624	429G6913	C FILM 50V 0.1UF	2
C1634	429G6919	C,METAL FILM 50V 0.33UF	1
C1824	429G8251	C,METAL FILM 50V 1000PF	1
C1606 C1823	429G8253	C,METAL FILM 50V 1500PF	2
C1814	429G8259	C,METAL FILM 50V 4700PF	1
C1628	429G8261	C,METAL FILM 50V 6800PF	1

MODEL : S/S/A/V PWR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
C1603		429G8263 C,METAL FILM 50V 0.01UF	1
C1808	C1809	429G8264 C,METAL FILM 50V 0.012UF	2
C1607		429G8267 C,METAL FILM 50V 0.022UF	1
C1604	C1815	429G8268 C,METAL FILM 50V 0.027UF	2
C1801		429G8471 C,FILM 50V 68GPF 5X	1
C1825		42974161 C,FILM 100V 0.033UF 5X	1
C1235		42976547 C092V1H561J.A	1
C1243		42976731 C,FILM 50V 0.33 UF 5X	1
C1122		42976812 C METAL FILM 50V 0.082UF	1
C1805		42978159 C,METAL FILM 50V 4700PF	1
C1224		430A8181 C,ELEC 6.3V 22UF	1
C1233	C1241 C1276	430A8103 C,ELEC 6.3V 47UF	13
C1287	C1403 C1422		
C1434	C1439 C1440		
C1612	C1616 C1618		
C1632			
C1120	C1207 C1441	430A8104 C,ELEC 6.3V 100UF	4
C1613			
C1609	C1615 C1623	430A8105 C,ELEC 10V 22UF	3
C1108	C1289 C1293	430A8106 C,ELEC 16V 10UF	12
C1432	C1610 C1611		
C1617	C1619 C1620		
C1631	C1647 C1813		
C1811	C1822	430A8110 C,ELEC 16V 22UF	2
C1436		430A8111 C,ELEC 16V 33UF	1
C1286	C1298 C1807	430A8112 C,ELEC 16V 47UF	8
C1810	C1812 C1819		
C1820	C1821		
C1103		430A8113 C,ELEC 16V 100UF	1
C1223		430A8114 C,ELEC 25V 4.7UF	1
C1601		430A8118 C,ELEC 25V 47UF	1
C1226	C1248 C1267	430A8119 C,ELEC 35V 3.3UF	2
C1630		430A8124 C,ELEC 50V 0.1UF	1
C1404		430A8125 C,ELEC 50V 0.22UF	1
C1216	C1228 C1405	430A8128 C,ELEC 50V 1UF	5
C1621	C1633		
C1225	C1433	430A8129 C,ELEC 50V 2.2UF	2
C1117		430A8130 C,ELEC 50V 3.3UF	1
C1112		430A8131 C,ELEC 50V 4.7UF	1
C1608		430A8144 C,ELEC 6.3V 220UF,AT	1
C1121		43011060 C,ELEC 35V 100UF	1
C1220		433A4164 C,ELEC 50V 3.3UF-5ESRA,AT	1
C1818		439A1583 C,ELEC 10UF 16V	1
C1804		439A1602 C,ELEC 1UF 50V	1
C1116		439J3C27 C,ELEC 16V 47UF	1
C1402		430A8104 C,ELEC 6.3V 470UF	1

MODEL : PRE AMP PWB ASSY

SYMBOL		PARTS NO		DESCRIPTION	QTY
*** ICS ***					
ICS01		37151238		IC AN6326N (HEAD AMP)	1
*** TRANSISTORS ***					
TR501	TR502	TR505	355D1931	TR 2SC2785(E,F,H,J)AT	5
TR506	TR507				
TR503			35543200	TR,2SC2188	1
TR504			35562244	TR,2SD639 R,S	1
*** COILS & FILTERS ***					
L508			610G1545	FILTER COIL 2200UH	1
L506			610G1818	FILTER COIL 0405 12UH,AT	1
L501			610G1819	FILTER COIL 0405 15UH,AT	1
L504			610G1821	FILTER COIL 0405 22UH,AT	1
L505			610G1825	FILTER COIL 0405 47UH,AT	1
L510			610G1826	FILTER COIL 0405 56UH,AT	1
L502	L503		610G1829	FILTER COIL 0405 100UH,AT	2
*** APPEARANCE PARTS ***					
			16582291	SHIELD CASE COVER A	1
			16582301	SHIELD CASE COVER B	1
			16582311	SHIELD CASE FRAME	1
*** RESISTORS ***					
R509	R510		401KE625	R,CARBON 10H 5X 1/6W	2
R508			401KE633	R,CARBON 22H 5X 1/6W	1
R506			401KE643	R,CARBON 56H 5X 1/6W	1
R504			401KE649	R,CARBON 100H 5X 1/6W	1
R505	R518		401KE657	R,CARBON 220H 5X 1/6W	2
R515			401KE659	R,CARBON 270H 5X 1/6W	1
R507	R511	R528	401KE661	R,CARBON 330H 5X 1/6W	3
R503	R520		401KE669	R,CARBON 680H 5X 1/6W	2
R517			401KE671	R,CARBON 820H 5X 1/6W	1
R514	R516	R519	401KE673	R,CARBON 1.0K 5X 1/6W	4
R522					
R513	R521	R523	401KE677	R,CARBON 1.5K 5X 1/6W	3
R502			401KE679	R,CARBON 1.8K 5X 1/6W	1
R530			401KE685	R,CARBON 3.3K 5X 1/6W	1
R501			401KE693	R,CARBON 6.8K 5X 1/6W	1
R512	R524	R525	401KE697	R,CARBON 10K 5X 1/6W	3

MODEL : PRF AMP PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** CAPACITORS ***			
C501	421CB017	C,CERAMIC 5CV 15 PF	1
C516	421CB025	C,CERAMIC 5CV 33 PF	1
C518	421CB035	C,CERAMIC 5CV 82 PF	1
C525	421CB046	C,CERAMIC 5CV 560PF	1
C517	421CB451	C,CERAMIC 16V 1500PF	1
C506	421CB457	C,CERAMIC 16V 4700PF	1
C502 C509 C519	421CB461	C,CERAMIC 16V 0.01UF	3
C504 C513 C515	421CB863	C,CERAMIC 25V 0.022UF	4
C524			
C507 C510	421J9C09	C,CERAMIC 5CV 0.022UF	2
C502	429C0337	C,CERAMIC 25V 0.1UF	1
C505	42930337	C,CERAMIC 25V 0.1UF	1
C512 C514	430A8107	C,ELEC 1CV 47UF	2
C521	430A8109	C,ELEC 16V 10UF	1
C503	430A8112	C,ELEC 16V 47UF	1
C511	430A8125	C,ELEC 5CV 0.22UF	1

MODEL : JACK TERMINAL PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
C901	43983306	CE04CDJ471 (NEW SS)	1
C902	430A8112	CE04C1C470-5BSRA,AT	1
C903	430A8110	CE04C1C220-5BSRA,AT	1
C904	430A8110	CE04C1C220-5BSRA,AT	1
C905	430A8110	CE04C1C220-5BSRA,AT	1
C906	430A8112	CE04C1C470-5BSRA,AT	1
C907	430A8112	CE04C1C470-5BSRA,AT	1
C908	430A8128	CE04C1HD10-5BSRA,AT	1
D901	360KA025	DIODE 1SS133, AT26	1
IC901	37101250	IC BA7026L	1
JK901	75V06321	A/V CONNECTOR (21P)	1
L901	610G2775	FILTER COIL L101J, BT ELEPK, A	1
L902	610G2775	FILTER COIL L101J, BT ELEPK, A	1
MD901	34354028	RF, MODULATOR (PAL, 136) AL2	1
R901	401KE673	RD1/6PTY1, OKJ, AT26	1
R902	401KE646	RD1/6PTY75HJ, AT26	1
R903	401KE665	RD1/6PTY470HJ, AT26	1
R904	401KE646	RD1/6PTY75HJ, AT26	1
R905	401KE673	RD1/6PTY1, OKJ, AT26	1
R906	401KE673	RD1/6PTY1, OKJ, AT26	1
TR901	35902912	TRANSISTOR 2SA 952 L	1
LPF901	69699005	DS310-558271	1
LPF902	69699005	DS310-558271	1
C909	42311100	CC45SL1H391J.B	1
C910	42311100	CC45SL1H391J.B	1
C911	42331045	CC45SL1H101J, A	1

MODEL : TIMER/FUNCTION PWB A

SYMBOL	PARTS NO	DESCRIPTION	QTY			
*** DIODES ***						
D20C1	D20C2	D20C3	360KA025	DIODE,1SS133	1F	
D20C4	D20C5	D20C6				
D20C7	D20C8	D20C9				
D20C10	D20C11	D20C12				
D20C13	D20C15	D20C16				
D20C17	D20C18	D20C23				
*** VARIABLE RESISTORS ***						
VR20C2		415042C1	VR 20KB K121LC L=2G		1	
VR20C1		41950550	VOLUME 500KB		1	
*** RELAYS & SWITCHES ***						
SW20C10	SW20C29		65180052	SLIDE SW 1-1-2	2	
SW20C1F			65180060	SW,SLIDE	1	
SW20C01	SW20C02	SW20C03		65330052	TACT SWITCH	1C
SW20C04	SW20C05	SW20C06				
SW20C07	SW20C08	SW20C09				
SW20C10	SW20C11	SW20C12				
SW20C13	SW20C15	SW20C16				
SW20C17						
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***						
FD20C01		67930071	FIP FIP8CHM7		1	
*** APPEARANCE PARTS ***						
		16443535	FIF HOLDER		1	
*** RESISTORS ***						
R20C1		401KE729	R,CARBON 22CK 5% 1/6W		1	
*** CAPACITORS ***						
C2001		430161C9	C,ELEC 16V 10UF		1	

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MODEL : TUNER/IF PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** CRT & TUNER ***			
	34393021	U/V TUNER(CATV)	1
*** ICS ***			
IC30C1	371C1240	IC LA7530	1
IC31C3	371C1284	IC LA7210	1
IC31C2	37151340	MOS CXK1005P (32W)	1
IC31C1	37903162	IC LA791C (X0260C)	1
*** TRANSISTORS ***			
TR31C2	35004113	TR,2SA916 M	1
TR31C4	35055312	TR 2SC2C01 L	1
TR31C5	35058012	TR 2SC2352 L	1
TR30C3 TR31C2 TR3106	35501931	TR 2SC2785(E,F,H,J)AT	4
TR31C7			
TR30C1 TR3002 TR3101	355K1131	TR,2SA1175 (E,F,H,J)	4
TR31C3			
TR30C4	35940502	TR,2SC1730 L	1
*** DIODES ***			
D31C1 D3102 D31C3	360KAC25	DIODE,1SS133	6
D31C4 D3105 D31C6			
ZD31C1	36003049	ZENER DIODE UPC-574J	1
*** VARIABLE RESISTORS ***			
X31C1	39080012	CERAMIC RESO. CSB500ES	1
VR31C1	41951148	R,VARIABLE 10K,P	1
*** COILS & FILTERS ***			
L30C3	610G2765	COIL FILTER	1
L30C4	610G2773	COIL FILTER	1
L30C5	61011531	SAW COIL 1R8	1
L30C2	61011535	SAW COIL 2R7	1
FL30C2	611C7C34	CERAMIC DISCRIMINATOR	1
FL30C3	611K5C12	SIF FILTER 5.5MHZ	1
FL30C4	61137037	CERAMIC TRAP TPSS.5MW	1
FL30C1	61138023	VIF SAWF SAF38.9MZR72Z	1
T3001 T3002	61815155	V.IFT (9.5TURN)	2

MODEL : TUNER/IF PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***			
	70780009	CABLE CONNECTOR (110MM)	1
*** APPEARANCE PARTS ***			
	16582402	TUNER SHIELD CASE	1
*** RESISTORS ***			
R3037		401KE625 R,CARBON 10W 5% 1/6W	1
R3035	R3152	401KE641 R,CARBON 47W 5% 1/6W	2
R3025		401KE645 R,CARBON 68W 5% 1/6W	1
R3036		401KE649 R,CARBON 100W 5% 1/6W	1
R3023		401KE653 R,CARBON 150W 5% 1/6W	1
R3032		401KE657 R,CARBON 220W 5% 1/6W	1
R3003		401KE659 R,CARBON 270W 5% 1/6W	1
R3009	R3011 R3145	401KE661 R,CARBON 330W 5% 1/6W	3
R3024		401KE663 R,CARBON 390W 5% 1/6W	1
R3004	R3020	401KE665 R,CARBON 470W 5% 1/6W	2
R3018	R3038	401KE669 R,CARBON 680W 5% 1/6W	2
R3007	R3015 R3017	401KE673 R,CARBON 1.0K 5% 1/6W	5
R3019	R3143		
R3142		401KE675 R,CARBON 1.2K 5% 1/6W	1
R3010	R3034 R3102	401KE681 R,CARBON 2.2K 5% 1/6W	8
R3103	R3129 R3130		
R3131	R3132		
R3110		401KE685 R,CARBON 3.3K 5% 1/6W	1
R3134		401KE687 R,CARBON 3.9K 5% 1/6W	1
R3002	R3012 R3022	401KE689 R,CARBON 4.7K 5% 1/6W	6
R3118	R3119 R3123		
R3005		401KE691 R,CARBON 5.6K 5% 1/6W	1
R3021		401KE693 R,CARBON 6.8K 5% 1/6W	1
R3111	R3112	401KE697 R,CARBON 10K 5% 1/6W	2
R3033		401KE690 R,CARBON 12K 5% 1/6W	1
R3141		401KE701 R,CARBON 15K 5% 1/6W	1
R3114	R3115 R3116	401KE703 R,CARBON 18K 5% 1/6W	4
R3146			
R3113	R3125 R3126	401KE705 R,CARBON 22K 5% 1/6W	7
R3127	R3128 R3135		
R3136			
R3008		401KE707 R,CARBON 27K 5% 1/6W	1
R3043	R3108 R3109	401KE713 R,CARBON 47K 5% 1/6W	6
R3149	R3150 R3153		
R3147		401KE717 R,CARBON 68K 5% 1/6W	1
R3006	R3014 R3105	401KE721 R,CARBON 100K 5% 1/6W	3

MODEL : TUNER/IF PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
R3120		401KE725 R,CARBON 150K 5% 1/6W	1
R3107		401KE729 R,CARBON 220K 5% 1/6W	1
R3144		401KE733 R,CARBON 330K 5% 1/6W	1
R3104	R3106	401KE737 R,CARBON 470K 5% 1/6W	2
R3133		40809989 R,FUSE 2.2H 5% 1/4W	1
R3137	R3138	409H8721 R,CARBON 100K 5% 1/4W	2
R3027	R3031 R3148	40913109 R,CARBON 2.2H 5% 1/4W	3
*** CAPACITORS ***			
C3110		421C8C43 C,CERAMIC 50V 330PF	1
C3109	C3113	421C8C49 C,CERAMIC 50V 1000PF	2
C3007	C3009 C3010	421C8C461 C,CERAMIC 16V 0.01UF	12
C3014	C3015 C3020		
C3031	C3032 C3033		
C3034	C3101 C3116		
C3001	C3002	421D8133 C,CERAMIC 25V 0.01UF	2
C3120		42110425 C,CERAMIC 50V 0.01UF	1
C3004		423A2015 C,CERAMIC 50V 10PF	1
C3018		423A2025 C,CERAMIC 50V 15PF	1
C3025		423A6003 C,CERAMIC 50V 3PF	1
C3011	C3012	423A6040 C,CERAMIC 50V 62PF	2
C3107		429G6921 C,METAL FILM 50V 0.47UF	1
C3005		429G8267 C,METAL FILM 50V 0.022UF	1
C3008		430A8109 C,ELEC 16V 10UF	1
C3019		430A8110 C,ELEC 16V 22UF	1
C3016	C3021 C3102	430A8112 C,ELEC 16V 47UF	4
C3115			
C3111	C3114	430A8127 C,ELEC 50V 0.47UF	2
C3003	C3108 C3112	430A8128 C,ELEC 50V 1UF	3
C3006		430A8130 C,ELEC 50V 2.3UF	1
C3106		430B6068 C,ELEC 50V 47UF	1
C3103	C3104 C3105	439H0049 C,ELEC 50V 0.22UF	3

MODEL : POWER REGULATOR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
D002	36107522	RECTIFIER, SI ERA15-02	1
D003	36107522	RECTIFIER, SI ERA15-02	1
D004	79VA0007	DIODE ERA15-01 UBC0125AZ	1
D005	79VA0007	DIODE ERA15-01 UBC0125AZ	1
D006	79VA0007	DIODE ERA15-01 UBC0125AZ	1
D007	79VA0007	DIODE ERA15-01 UBC0125AZ	1
D008	79VA0007	DIODE ERA15-01 UBC0125AZ	1
D009	36003954	DIODE 1S2076A	1
IC001	79VA0003	IC M5237L IICZ0097ZZ	1
IC002	79VA0004	IC PQ12R02 UCB0028AZ	1
R002	79VA0016	1/4W220HJ, B(7.5)	1
R003	79VA0016	1/4W220HJ, B(7.5)	1
R004	79VA0025	PS1PC910HJ, S	1
R006	79VA0010	1/4W33KGB(7.5)	1
R007	79VA0011	1/4W4.3KGB(7.5)	1
R008	79VA0012	1/4W0.22HM, A	1
R009	79VA0013	1W0.47HK, S	1
R010	79VA0014	1/4W2.7KJ, B(7.5)	1
R011	79VA0026	1/4W33KJ, B(7.5)	1
R012	79VA0014	1/4W2.7KJ, B(7.5)	1
R013	79VA0016	1/4W220HJ, B(7.5)	1
R014	79VA0017	1/4W1.2KJ, B(7.5)	1
R015	79VA0018	1/4W10KJ, B(7.5)	1
R016	79VA0018	1/4W10KJ, B(7.5)	1
R017	79VA0011	1/4W4.3KGB(7.5)	1
R018	79VA0019	1/4W680HJ, B(7.5)	1
R020	79VA0020	1/4W22KJ, B(7.5)	1
TR001	35520817	TR, 2SB949 Q	1
TR002	35003516	TR, 2SA733/733A P	1
TR003	35920916	TR, 2SB548 P	1
TR004	35170505	TR, AA1A4M	1
TR005	79VA0005	2SD1266 UAD0090CZ	1
TR006	35170501	TR, AA1A4M	1
TR007	79VA0006	2SD1286 UAD0089AZ	1
TR008	35541931	TR, 2SC2785(E, F, H, J)	1
ZD001	36905164	ZENER DIODE KD56EB2(A)	1
C002	43026058	C, ELEC 35V 1000UF	1
C003	79VA0021	CE04W1J101MA UGAG101BU	1
C004	43026041	CE04W1E470MA	1
C005	43026034	CE04W1C222MA	1
C006	42976509	CQ92V1H472J, A	1
C007	43026048	CE04W1E332MA	1
C008	43026028	CE041C470MA	1
C009	43026045	CE04W1E471MA	1
C010	43026040	CE04W1E330MA	1
C011	42311045	CC45SL1H101J, B	1
C012	79VA0023	CE04W2A101MA UGAJ101BU	1
C013	79VA0063	CE04W1H010MA UGAF101ROBU	1
C015	42976525	CQ92V1H104J, A	1
SW001	79VA0071	SWITCH PJC0136ZZ	1

SMODEL : POWER/REGULATOR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
PT001	79VA0073	TRANSFORMER NH1309	1
F001	66671005	FUSE SET 2A 250V	1
F091	66671005	FUSE SET 2A 250V	1
PC001	79VA0075	POWER SUPPLY CORD IEC EHS0291ZZ	1
L091	79VA0076	CHOKO COIL FK08160MH15	1
C091	79VA0074	0.1UF UGZ0326ZZ	1
	18292501	WIRE CLAMPER #2104	1

MODEL : PACKING ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ELECIPICAL PARTS & MISCELLANEOUS PARTS ***			
K007	79799458	REMOCON UNIT RL-53P	1
*** APPEARANCE PARTS ***			
K011	16830121	PACKAGE	1
K009	16832952	CUSHION(FRONT)	1
K010	16832961	CUSHION(PFAP)	1
K012	16833111	CARTON BOX N90536	1
*** PRINTED & PACKING MATERIALS ***			
K003	78816831	INSTRUCTION BOOK N90536	1
	79559054	IEC RF CABLE (1.2M)	1

MODEL : MECHANICAL PARTS

SYMBOL	PARTS NO	DESCRIPTION	QTY
B003	16177871	S. SOFT BRAKE ARM ASSY	1
B004	16177882	TU. SOFT BRAKE ARM ASSY	1
B005	16177922	LOADING UP ASSY	1
B006	16177932	LOADING LOW ASSY	1
B007	16178003	C. BRAKE ASSY	1
B010	16178062	S. REEL DISK ASSY	1
B012	16178301	EARTH PLATE S.A.	1
B015	16178392	MODE GEAR ASSY	1
B009	16179853	REEL DISK ASSY (2)	1
B071	16180503	IMPEDANCE ROLLER ASSY	1
B011	16180801	R. IDLER ASSY	1
B001	16183542	TENSION ARM ASSY(M2)	1
B002	16183551	TENSION BAND ASSY(M2)	1
B013	16183561	BRAKE ARM(R) ASSY(M2)	1
B014	16183571	BRAKE ARM (L) ASSY(M2)	1
B091	16183581	CONNECTED ARM ASSY	1
B092	16183591	LOCK LEVER ASSY	1
B094	16183611	S LINK ARM ASSY	1
B095	16183632	S LINK ASSY	1
B016	16183642	REVERSE ARM ASSY	1
B066	16183653	PINCH ROLLER ARM ASSY(M2)	1
B069	16183671	MODE CAM ASSY(M2)	1
B073	16183981	LED HOLDER ASSY (M2)	1
B093	16184071	BRAKE LINK ARM ASSY (DC)	1
B084	16184371	R. DRIVE ASSY (M2)	1
B067	16184381	PINCH LINK ASSY	1
B018	16287641	NUT	4
B019	16288381	CLAMPER	1
B020	16442101	GUIDE ROLLER	6
B021	16442111	GUIDE ROLLER HOLDER	3
B022	16442121	GEAR (1)	1
B023	16442131	GEAR (2)	1
B024	16442161	DRIVE RELT	1
B027	16443362	GEAR	1
B028	16444374	G.P CAP	1
B098	16448341	ACE CODE CRAMPER	1
B029	16534121	COLLAR	2
B030	16534231	FRANGE	2
B031	16534251	COLLER	2
B032	16534262	PIN	1
B082	16534971	TAPER FLANGE	1

MODEL : MECHANICAL PART

SYMBOL	PARTS NO	DESCRIPTION	QTY
B035	16578922	SPRING	1
B036	16578941	SPRING	1
B037	16578972	GUIDE PIN SPRING	1
B042	16579172	SPRING	1
B068	16579261	PINCH LINK SP.PLATE	2
B044	16579911	SPRING (REV.ARM)	1
B087	16580681	IMPEDANCE ROLLER SPRING(C	1
B041	16580762	C.BRAKE SPRING (3)	1
B100	16582031	BRAKE LINK(2)	1
B101	16582041	LINK RETURN SPRING	1
B102	16582051	LOCK LEVER SPRING	1
B033	16582161	TENSION SPRING(M2)	1
B104	16582201	BRAKE LINK(1)	1
B089	16582611	IP SPRING NO.2(T)	1
B038	16582761	S.SOFT BRAKE SPRING	1
B039	16582771	TU.SOFT BRAKE SPRING	1
B090	16582931	SPRING (T.A)	1
B047	16629291	SLIT WASHER	1
B049	16629382	SLIT WASHER	2
B051	16629412	SLIT WASHER	3
B052	16629422	SLIT WASHER	1
B050	16630591	SLIT WASHER	9
B512	16875871	SCREW,S M3X5X15BF	3
B504	16877841	SCREW,2.6*8*15BF	3
B505	16878191	SPECIAL SCREW	4
B534	188E6201	SPECIAL SCREW	2
B072	79501111	FE HEAD	1
B060	79501144	ACE HEAD ASSY(1.2 MCNO)	1
B055	79502073	CAPSTAN MOTOR BHF-3105A	1
B061	82417PM1	MODE SENSOR SASSY	1
B058	82601PB1	S.SLANT BASE SASSY	1
B059	82601BC1	TU.SLANT BASE SASSY	1
B108	82642PJ1	JUNCTION FWR SASSY	1
B057	82674AA1	HEAD DRUM SASSY(P/S-DEV2)	1
B506	910C2331	SCREW L-CPIMS*2.6*15BF	2
B096	16286981	WASHER D3.1 TO.5	1
B099	16535261	ACE ADJUST FLATE	1
B511	16875541	SCREW M3*10*15BF	3
B510	16877711	PL-CPIMS*2.6*5*15BF	1

MODEL : MECHANICAL PART

SYMBOL	PARTS NO	DESCRIPTION	QTY
B107	73200033	CONNECTER TEG-P08X-A1	1
B088	82515AH1	ROTARY DRUM S.A(PA,SE-2H)	1
B502	910E3C31	SCREW,PL-CPIMS*3*6*15BF	3
B508	91012011	SCREW CPIMS*2*4*15BF	1
B501	91012361	SCREW,CPIMS*2.6*10*15FF	3
B078	16629252	LOADING BELT	1
B074	36904255	LED GL450	1

MODEL : CASSETTE HOUSING ASSEMBLY

SYMBOL	PARTS NO	DESCRIPTION	QTY
A301	16441731	LOADING BELT	1
A302	35290301	PHOTO TR PT361	2
A303	65330045	TACT SWITCH	2
A304	79502029	DC MICRO MOTOR RF-280R-10350	1
B070	65907089	REC SAFETY SW	1

MODEL : CHASSIS ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** PWB ASSYS ***			
PA04	81683001	S/S/A/V PWB ASSY	1
PA05	81683F01	TUNER/IF PWB ASSY	1
PA06	81683F01	TIMER/FUNCTION PWR ASSY	1
PA12	81683L01	PRE AMP PWB ASSY	1

MODEL : SET ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
A110	71129058	JACK TERMINAL	1
A101	16183864	CASSETTE HOUSE ASSY	1
A001	16184431	FRONT PANEL ASSY N9C53G	1
A002	16375261	TOP COVER	1
A102	16448801	FRONT COVER	1
A005	16478461	KNUB, TRACKING	2
A103	16573831	FRONT COVER SPRING	1
A003	16582361	BOTTOM PLATE	1
A10E	16631221	FUSE COVER(3)	1
B532	16876431	SCREW, FTB4X12X15RF	12
B533	16878171	SCREW (TOP)	4
B534	1P8E6201	SPECIAL SCREW	9

SECTION 6-1

REPLACEMENT PARTS LIST (N9055G)

87.07.13

S/S/V PWB ASSY	6-1-2
PRE AMP PWB ASSY	6-1-5
JACK TERMINAL PWB ASSY	6-1-6
NORMAL AUDIO PWB ASSY	6-1-7
TIMER/FUNCTION PWB ASSY	6-1-8
SUB FUNCTION PWB ASSY	6-1-9
TUNER/IF PWB ASSY	6-1-9
POWER REGULATOR ASSY	6-1-11
PACKING PARTS	6-1-12
MECHANICAL PARTS	6-1-12
CASSETTE HOUSING ASSEMBLY	6-1-14
SET ASSEMBLY	6-1-14
CHASSIS ASSEMBLY	6-1-14

MODEL : SYS/SER/VID PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ICS ***			
IC1605	37101117	IC UPC324C	1
IC1604	37101127	IC UPC-393C	1
IC1402	37101249	BA7025L (SECAM DET)	1
IC1607	37101268	IC BA235	1
IC1609	37101274	IC BA236	1
IC1206	37101288	IC HA17805	1
IC1201	37101312	IC AN3215K (REC Y-PROCESS)	1
IC1202	37101313	IC AN3321K (PB Y PROCESS)	1
IC1602 IC1603	37101323	IC BA15218 (OP AMP)	2
IC1208	37101326	IC LA73C8	1
IC1401	37101334	IC PAL CHROMA(6163,6367)	1
IC1608	37151116	MOS UPD4011BC	1
IC1610	37151249	MOS UPD4538BC (NEC-B)	1
IC1403	37151254	IC TK15C61Z	1
IC1103	37151267	MOS MN1280R VOLTAGE DET	1
IC1102	37151334	IC BA6246	1
IC1601	37151336	MOS BU2733S (PAL SERVO)	1
IC1101	37151369	MOS UPD75106CW-G58 N916S3	1
*** TRANSISTORS ***			
TR1609	35065416	TR,2SD882 P	1
TR1203 TR1209 TR1211	35501931	TR 2SC2785(E,F,H,J)AT	14
TR1235 TR1236 TR1255			
TR1402 TR1404 TR1407			
TR1409 TR1410 TR1411			
TR1601 TR1608			
TR1101 TR1206 TR1207	35502716	TR,BA1F4M	12
TR1212 TR1221 TR1234			
TR1243 TR1247 TR1254			
TR1413 TR1415 TR1419			
TR1103 TR1603 TR1604	35502717	TR,BA1L4M	6
TR1607 TR1610 TR1612			
TR1403 TR1416 TR1611	355K1131	TR,2SA1175 (E,F,H,J)	3
TR1242	355K2110	BN1F4M (A,22K) AT	1
TR1208 TR1213 TR1220	355K2113	DTR UN4122(FNP 4.7K),AT	5
TR1253 TR1418			
TR1102	3556251P	TR 2SD1227M R	1
*** DIODES ***			
D1603 D1608	360KAC09	DIODE 1S2473 AT26	2
D1101 D1102 D1202	360KA025	DIODE 1SS133	18
D1217 D1223 D1224			
D1401 D1402 D1601			

MODEL : SYS/SER/VID PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
D1602 D1604 D1605	360KA025	DIODE,1SS133	18
D1606 D1607 D1611			
D1612 D1613 D1614			
ZD1603	369KE198	ZENER DIODE RD16EB2,AT26	1
ZD1101	369KE440	ZENER DIODE RD1CJB3,AT26	1
ZD1602	36905046	ZENER,DIODE RD-6.2EB2-H	1
*** VARIABLE RESISTORS ***			
X1101	39080023	4.19MHZ RESONATOR	1
RM1101	39906127	RELOCK100K*4 1.8MM 1/16W	1
VR1201	41951144	R,VARIABLE 2.2K,B	1
VR1213	41951146	R,VARIABLE 4.7K,B	1
VR1205	41951147	R,VARIABLE 6.8K,B	1
VR1402	41951148	R,VARIABLE 10K,B	1
VR1204 VR1210	41951150	R,VARIABLE 22K,B	2
VR1202 VR1203 VR1206	41951152	R,VARIABLE 47K,B	3
VR1601	41951154	R,VARIABLE 100K,B	1
VR1603	41951157	R,VARIABLE 330K,B	1
VR1401	41951249	R,VARIABLE 2.2KB	1
*** COILS & FILTERS ***			
L1205 L1404	610G1545	FILTER COIL 2200UH	2
L1206 L1207 L1409	610G1819	FILTER COIL 0405 15UH,AT	3
L1203 L1219 L1401	610G1825	FILTER COIL 0405 47UH,AT	4
L1408			
L1202 L1204 L1210	610G1829	FILTER COIL 0405 100UH,AT	10
L1211 L1216 L1217			
L1406 L1407 L1410			
L1411			
L1403	610G1833	FILTER COIL 0405 220UH,AT	1
L1402	610G1835	FILTER COIL 0405 330UH,AT	1
L1601	61072132	COIL,FILTER 100UH	1
CF1401	61137C09	CERAMIC FILTER 4.16MHZ	1
DL1401	61551046	DELAY (COMB FILTER)	1
DL1202	61551C80	1HDLL(PAL,NOISE CANCEL)	1
FL1201	61827038	3.2MHZ L.P.F	1
FL1402	61827066	PAL 2IN1FILTER(5.06,1.4M)	1
FL1401	61827067	4.43MHZ BPF(3435)	1
T1401	61828C14	LC FILTER (8KHZ TRAP)	1
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***			
X1401	64004143	X'TAL 4.43MHZ (W/O-ADJ)	1

MODEL : SYS/SER/VID PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** APPEARANCE PARTS ***			
	16286431	PWB HINGE	1
	16286932	BAND WHITE	1
	16288391	PWB BRACKET(H7)	1
	16288401	CLUMPER	1
	16582441	HEAT SINK(2)	1
	16630891	SSAV SPACER	1
	16631011		1
	16875531	SCREW M3*8*15BF	1
*** RESISTORS ***			
R1437	401KE641	R,CARBON 47H 5X 1/6W	1
R1366	401KE649	R,CARBON 100H 5X 1/6W	1
R1248	401KE651	R,CARBON 120H 5X 1/6W	1
R1245	401KE653	R,CARBON 15CH 5X 1/6W	1
R1125 R1126 R1127	401KE657	R,CARBON 220H 5X 1/6W	5
R1415 R1660			
R1246 R1253	401KE659	R,CARBON 27CH 5X 1/6W	2
R1421	401KE661	R,CARBON 330H 5X 1/6W	1
R1413 R1420	401KE665	R,CARBON 470H 5X 1/6W	2
R1236	401KE666	R,CARBON 510H 5X 1/6W	1
R1249	401KE667	R,CARBON 560H 5X 1/6W	1
R1150 R1225 R1235	401KE669	R,CARBON 680H 5X 1/6W	5
R1240 R1636			
R1418 R1688	401KE670	R,CARBON 750H 5X 1/6W	2
R1228 R1429 R1689	401KE671	R,CARBON 820H 5X 1/6W	3
R1128 R1213 R1233	401KE673	R,CARBON 1.0K 5X 1/6W	17
R1310 R1363 R1414			
R1416 R1417 R1423			
R1424 R1436 R1438			
R1447 R1454 R1629			
R1640 R1648			
R1220 R1252 R1258	401KE675	R,CARBON 1.2K 5X 1/6W	5
R1412 R1419			
R1239 R1241 R1289	401KE677	R,CARBON 1.5K 5X 1/6W	5
R1299 R1313			
R1215 R1218 R1282	401KE679	R,CARBON 1.8K 5X 1/6W	7
R1283 R1404 R1641			
R1659			
R1207 R1210 R1211	401KE681	R,CARBON 2.2K 5X 1/6W	9
R1247 R1365 R1425			
R1403 R1624 R1625	401KE683	R,CARBON 2.7K 5X 1/6W	3
R1121 R1122 R1123	401KE685	R,CARBON 3.3K 5X 1/6W	14
R1124 R1134 R1137			
R1140 R1142 R1147			

MODEL : SYS/SER/VID PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
R1614 R1646 R1655	401KE685	R,CARBON 3.3K 5X 1/6W	14
R1675 R1676			
R1280 R1411 R1430	401KE689	R,CARBON 4.7K 5X 1/6W	3
R1250 R1367 R1428	401KE691	R,CARBON 5.6K 5X 1/6W	10
R1432 R1433 R1442			
R1451 R1608 R1663			
R1664			
R1405 R1406 R1607	401KE693	R,CARBON 6.8K 5X 1/6W	5
R1643 R1644			
R1426 R1657	401KE695	R,CARBON 8.2K 5X 1/6W	2
R1119 R1120 R1216	401KE697	R,CARBON 10K 5X 1/6W	11
R1244 R1296 R1298			
R1305 R1362 R1448			
R1677 R1680			
R1401 R1410 R1605	401KE699	R,CARBON 12K 5X 1/6W	4
R1650			
R1221 R1633 R1634	401KE701	R,CARBON 15K 5X 1/6W	7
R1652 R1653 R1668			
R1674			
R1626 R1631 R1632	401KE703	R,CARBON 18K 5X 1/6W	4
R1637			
R1203 R1204 R1237	401KE705	R,CARBON 22K 5X 1/6W	8
R1238 R1303 R1304			
R1445 R1671			
R1300 R1301 R1658	401KE709	R,CARBON 33K 5X 1/6W	3
R1620	401KE711	R,CARBON 39K 5X 1/6W	1
R1606	401KE713	R,CARBON 47K 5X 1/6W	1
R1627 R1679	401KE715	R,CARBON 56K 5X 1/6W	2
R1604 R1619	401KE717	R,CARBON 68K 5X 1/6W	2
R1617	401KE718	R,CARBON 75K 5X 1/6W	1
R1603 R1638	401KE719	R,CARBON 82K 5X 1/6W	2
R1111 R1112 R1115	401KE721	R,CARBON 100K 5X 1/6W	24
R1135 R1138 R1139			
R1141 R1144 R1145			
R1146 R1148 R1408			
R1409 R1422 R1434			
R1610 R1616 R1628			
R1639 R1642 R1647			
R1649 R1683 R1687			
R1443 R1615 R1635	401KE723	R,CARBON 120K 5X 1/6W	3
R1222 R1609	401KE727	R,CARBON 180K 5X 1/6W	2
R1623 R1682	401KE729	R,CARBON 220K 5X 1/6W	2
R1613	401KE731	R,CARBON 270K 5X 1/6W	1
R1618	401KE737	R,CARBON 470K 5X 1/6W	1
R1673	401KE739	R,CARBON 560K 5X 1/6W	1
R1681	401KE741	R,CARBON 680K 5X 1/6W	1
R1672	401KE744	R,CARBON 910K 5X 1/6W	1
R1427 R1611 R1645	401KE745	R,CARBON 1.0M 5X 1/6W	5
R1654 R1684			
R1455	40105709	R,CARBON 33K 5X 1/6W	1
R1116	40105728	R,CARBON 200K 5X 1/6W	1
R1103	40351109	R,METAL 2.2H 5X 1W	1
R1602	40809801	R,FUSE 1.0H 5X 1/2W	1
R1656	409HB649	R,CARBON 100H 5X 1/4W	1
R1229 R1452	409HB657	R,CARBON 220H 5X 1/4W	2

MODEL : SYS/SER/VID PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
R1101	409HB665	R,CARBON 47CH 5X 1/4W	1
R1669	409HB671	R,CARBON 820H 5X 1/4W	1
R1118 R1219	409HB673	R,CARBON 1.0K 5X 1/4W	2
R1129 R1130 R1131	409HB685	R,CARBON 3.3K 5X 1/4W	5
R1132 R1622	409HB689	R,CARBON 4.7K 5X 1/4W	1
R1670	409HB691	R,CARBON 5.6K 5X 1/4W	1
R1665	409HB697	R,CARBON 10K 5X 1/4W	3
R1136 R1201 R1312	409HB701	R,CARBON 15K 5X 1/4W	1
R1407	409HB705	R,CARBON 22K 5X 1/4W	2
R1431 R1678	409HB714	R,CARBON 51K 5X 1/4W	2
R1104 R1105	409HB721	R,CARBON 100K 5X 1/4W	2
R1106 R1143	409HB725	R,CARBON 150K 5X 1/4W	1
R1651	409HB751	R,CARBON 1.8M 5X 1/4W	1
R1630	409HB761	R,CARBON 4.7M 5X 1/4W	1
R1612	40912161	R,CARBON 33CH 5X 1/2W	1
R1102	40982217	R,CARBON 68K 5X 1/4W	1
R1357	40983249	R,CARBON 1.5M 5X 1/4W	1
R1686			
*** CAPACITORS ***			
C1103	421A0933	C,CERAMIC 50V 0.047UF	1
C1253	421CB015	C,CERAMIC 50V 12 PF	1
C1291 C1421	421CB017	C,CERAMIC 50V 15 PF	2
C1266 C1268	421CB019	C,CERAMIC 50V 18 PF	2
C1210 C1254	421CB027	C,CERAMIC 50V 39 PF	2
C1402	421CB031	C,CERAMIC 50V 56 PF	1
C1206 C1236	421CB035	C,CERAMIC 50V 82 PF	2
C1108 C1212 C1625	421CB037	C,CERAMIC 50V 100PF	3
C1227 C1231	421CB038	C,CERAMIC 50V 120PF	2
C1242	421CB039	C,CERAMIC 50V 150PF	1
C1626	421CB041	C,CERAMIC 50V 220PF	1
C1614	421CB042	C,CERAMIC 50V 270PF	1
C1413	421CB044	C,CERAMIC 50V 390PF	1
C1229 C1646	421CB045	C,CERAMIC 50V 470PF	2
C1205 C1245	421CB047	C,CERAMIC 50V 680PF	2
C1407 C1622 C1645	421CB049	C,CERAMIC 50V 1000PF	3
C1406	421CB2C9	C,CERAMIC 50V 4.7 PF	1
C1411	421CB239	C,CERAMIC 50V 150PF	1
C1410	421CB240	C,CERAMIC 50V 180PF	1
C1419	421CB241	C,CERAMIC 50V 220PF	1
C1420	421CB245	C,CERAMIC 50V 470PF	1
C1431	421CB453	C,CERAMIC 16V 2200PF	1
C1432	421CB455	C,CERAMIC 16V 3300PF	1
C1104 C1102 C1106	421CB461	C,CERAMIC 16V 0.01UF	27
C1209 C1211 C1221			
C1222 C1232 C1244			
C1246 C1250 C1251			
C1252 C1255 C1256			
C1257 C1258 C1401			

MODEL : SYS/SER/VID PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
C1402 C1415 C1416 C1423 C1425 C1427 C1429 C1443 C1444	421CB461	C,CERAMIC 16V 0.01UF	27
C1208 C1240 C1275 C1288 C1294 C1424 C1435 C1437 C1445	421CB863	C,CERAMIC 25V 0.022UF	10
C1107	421C0217	C,CERAMIC 50V 2200PF	1
C1109	42110925	C,CERAMIC 50V 0.01UF	1
C1409 C1414 C1639	42110933	C,CERAMIC 50V 0.047UF	3
C1446	42132041	C,CERAMIC 50V 220PF	1
C1654	42132963	C,CERAMIC 25V 0.022UF	1
C1636 C1642 C1643	429G6909	C METAL FILM 50V 0.047UF	3
C1641	429G6910	C METAL FILM 50V 0.047UF	1
C1605 C1629	429G6912	C,FILM 50V 0.082UF	2
C1624	429G6913	C,FILM 50V 0.1UF	1
C1635	429G6914	C,METAL FILM 0.12UF	1
C1634	429G6919	C,METAL FILM 50V 0.33UF	1
C1604	429G8268	C,METAL FILM 50V 0.027UF	1
C1249	42930337	C,CERAMIC 25V 0.1UF	1
C1235	42976547	CQ92V1H561J.A	1
C1243	42976731	C,FILM 50V 0.33 UF 5X	1
C1627	42976808	C METAL FILM 50V 0.039UF	1
C129C	42976813	C METAL FILM 50V 0.1UF	1
C1606	42978153	C,METAL FILM 50V 1500PF	1
C1628	42978161	C,METAL FILM 50V 6800PF	1
C1603	42978163	C,METAL FILM 50V 0.01UF	1
C1607	42978167	C,METAL FILM 50V 0.022UF	1
C1233 C1241 C1287 C1403 C1422 C1434 C1439 C1440 C1612 C1616 C1618 C1632 C1105 C1207 C1441	430A8103	C,ELEC 6.3V 47UF	12
C1613	430A8104	C,ELEC 6.3V 100UF	4
C1224 C1609 C1615	430A8105	C,ELEC 10V 22UF	4
C1623	430A8109	C,ELEC 16V 10UF	10
C1289 C1293 C1432 C1610 C1611 C1617 C1619 C1620 C1640 C1647 C1436 C1276 C1286 C1298	430A8111	C,ELEC 16V 33UF	1
C1104	430A8112	C,ELEC 16V 47UF	3
C1223	430A8113	C,ELEC 16V 100UF	1
	430A8114	C,ELEC 25V 4.7UF	1
C1601	430A8118	C,ELEC 25V 47UF	1
C1226 C1248 C1267	430A8119	C,ELEC 35V 3.3UF	3
C1404	430A8125	C,ELEC 50V 0.22UF	1
C1216 C1228 C1405	430A8128	C,ELEC 50V 1UF	5

MODEL : SYS/SER/VID PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
C1621 C1633	430A812R	C,ELEC 50V 1UF	5
C1225 C1433	430A8129	C,ELEC 50V 2.2UF	2
C1608	430A8144	C,ELEC 6.3V 220UF,AT	1
C1637	433A4161	C,ELEC 50V 1.0UF-SBSRA,AT	1
C1220	433A4164	C,ELEC 50V 3.3UF-SBSRA,AT	1
C1644	439H0055	C,ELEC 50V 2.2UF	1
C1602	43983306	C,ELEC 6.3V 470UF	1

MODEL : PRE AMP PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ICS ***			
IC5C1	37151238	IC AN6326N (HEAD AMP)	1
*** TRANSISTORS ***			
TR501 TR502	TR505 355D1931	TR 2SC2785(E,F,H,J)AT	5
TR506 TR507			
TR503	35543200	TR,2SC2188	1
TR504	35562244	TR,2SD639 R,S	1
*** COILS & FILTERS ***			
L508	610G1545	FILTER COIL 2200UH	1
L506	610G1818	FILTER COIL 0405 12UH,AT	1
L501	610G1819	FILTER COIL 0405 15UH,AT	1
L504	610G1821	FILTER COIL 0405 22UH,AT	1
L505	610G1825	FILTER COIL 0405 47UH,AT	1
L510	610G1826	FILTER COIL 0405 56UH,AT	1
L502 L503	610G1829	FILTER COIL 0405 100UH,AT	2
*** APPEARANCE PARTS ***			
	16582291	SHIELD CASE COVER A	1
	16582301	SHIELD CASE COVER B	1
	16582311	SHIELD CASE FRAME	1
*** RESISTORS ***			
R509 R510	401KE625	R,CARBON 10H 5X 1/6W	2
R508	401KE633	R,CARBON 22H 5X 1/6W	1
R506	401KE643	R,CARBON 56H 5X 1/6W	1
R504	401KE649	R,CARBON 100H 5X 1/6W	1
R505 R518	401KE657	R,CARBON 220H 5X 1/6W	2
R515	401KE659	R,CARBON 270H 5X 1/6W	1
R507 R511 R528	401KE661	R,CARBON 330H 5X 1/6W	3
R503 R520	401KE669	R,CARBON 680H 5X 1/6W	2
R517	401KE671	R,CARBON 820H 5X 1/6W	1
R514 R516 R519	401KE673	R,CARBON 1.0K 5X 1/6W	4
R522			
R513 R521 R523	401KE677	R,CARBON 1.5K 5X 1/6W	3
R502	401KE679	R,CARBON 1.8K 5X 1/6W	1
R530	401KE685	R,CARBON 3.3K 5X 1/6W	1
R501	401KE693	R,CARBON 6.8K 5X 1/6W	1
R512 R524 R525	401KE697	R,CARBON 10K 5X 1/6W	3

MODEL : PRE AMP PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** CAPACITORS ***			
C501	421CB017	C,CERAMIC 50V 15 PF	1
C516	421CB025	C,CERAMIC 50V 33 PF	1
C518	421CB035	C,CERAMIC 50V 82 PF	1
C525	421CB046	C,CERAMIC 50V 560PF	1
C517	421CB451	C,CERAMIC 16V 1500PF	1
C506	421CB457	C,CERAMIC 16V 4700PF	1
C508	C509 C519	421CB461 C,CERAMIC 16V 0.01UF	3
C504	C513 C515	421CB863 C,CERAMIC 25V 0.022UF	4
C524			
C507	C510	421J9C09 C,CERAMIC 50V 0.022UF	2
C502		429C0337 C,CERAMIC 25V 0.1UF	1
C505		42930337 C,CERAMIC 25V 0.1UF	1
C512	C514	430A8107 C,ELEC 10V 47UF	2
C521		430A8109 C,ELEC 16V 10UF	1
C503		430A8112 C,ELEC 16V 47UF	1
C511		430A8125 C,ELEC 50V 0.22UF	1

MODEL : JACK TERMINAL PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
C901	43983306	CE04CDJ471 (NEW SS)	1
C902	430A8112	CE04C1C470-58SRA, AT	1
C903	430A8110	CE04C1C220-58SRA, AT	1
C904	430A8110	CE04C1C220-58SRA, AT	1
C905	430A8110	CE04C1C220-58SRA, AT	1
C906	430A8112	CE04C1C470-58SRA, AT	1
C907	430A8112	CE04C1C470-58SRA, AT	1
C908	430A8128	CE04C1HD10-58SRA, AT	1
D901	36DKA025	DIODE 1SS133, AT26	1
IC901	37101250	IC BA7026L	1
JK901	79V06321	A/V CONNECTOR (21P)	1
L901	610G2775	FILTER COIL L101J, BT ELEPK, A	1
L902	610G2775	FILTER COIL L101J, BT ELEPK, A	1
MD901	34354028	RF, MODULATOR (PAL, 136) AL2	1
R901	401KE673	RD1/6PTY1, DKJ, AT26	1
R902	401KE646	RD1/6PTY75HJ, AT26	1
R903	401KE665	RD1/6PTY470HJ, AT26	1
R904	401KE646	RD1/6PTY75HJ, AT26	1
R905	401KE673	RD1/6PTY1, DKJ, AT26	1
R906	401KE673	RD1/6PTY1, DKJ, AT26	1
TR901	35902912	TRANSISTOR 2SA 952 L	1
LPF901	69699005	DS310-55B271	1
LPF902	69699005	DS310-55B271	1
C909	42311100	CC45SL1H391J.B	1
C910	42311100	CC45SL1H391J.B	1
C911	42331045	CC45SL1H101J, A	1

MODEL : NORMAL AUDIO PWB ASS

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ICS ***			
IC4001	37101311	IC LA7098 (AUDIO)	1
*** TRANSISTORS ***			
TR4001	35055312	TR 2SC2C01 L	1
*** VARIABLE RESISTORS ***			
VR4002	41951249	R,VARIABLE 2.2KB	1
VR4001	41951254	R,VARIABLE 10KB	1
*** COILS & FILTERS ***			
L4001 L4002	610E2100	FILTER COIL 822J,AT	2
L4003	610G1537	FILTER COIL 470UH AT(S)	1
T4001	61911215	OSC COIL	1
*** APPEARANCE PARTS ***			
A107	16445602	SLIDE HINGE	2
*** RESISTORS ***			
R4022	401KE625	R,CARBON 10H 5% 1/6W	1
R4021	401KE631	R,CARBON 18H 5% 1/6W	1
R4016	401KE643	R,CARBON 56H 5% 1/6W	1
R4005	401KE667	R,CARBON 560H 5% 1/6W	1
R4007 R4015	401KE673	R,CARBON 1.0K 5% 1/6W	2
R4012	401KE675	R,CARBON 1.2K 5% 1/6W	1
R4014	401KE681	R,CARBON 2.2K 5% 1/6W	1
R4002	401KE687	R,CARBON 3.9K 5% 1/6W	1
R4005	401KE689	R,CARBON 4.7K 5% 1/6W	1
R4013	401KE696	R,CARBON 9.1K 5% 1/6W	1
R4003 R4019 R4020	401KE7C5	R,CARBON 22K 5% 1/6W	3
R4001	401KE713	R,CARBON 47K 5% 1/6W	1
R4004	401KE741	R,CARBON 680K 5% 1/6W	1
R4011	40105674	R,CARBON 1.1K 5% 1/6W	1
R4008	40105715	R,CARBON 56K 5% 1/6W	1
R4023	40982101	R,CARBON 1.CH 5% 1/4W	1
R4010	40982249	R,CARBON 1.5H 5% 1/4W	1

MODEL : NORMAL AUDIO PWB ASS

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** CAPACITORS ***			
C4026	421C8C49	C,CERAMIC 50V 1000PF	1
C4027	42331C52	C,CERAMIC 50V 200PF	1
C4024	429G8251	C,METAL FILM 50V 1000PF	1
C4023	429G8253	C,METAL FILM 50V 1500PF	1
C4005 C4014	429G8259	C,METAL FILM 50V 4700PF	2
C4008 C4009	429G8264	C,METAL FILM 50V 0.012UF	2
C4015	429G8268	C,METAL FILM 50V 0.027UF	1
C4001	429G8471	C,FILM 50V 680PF 5%	1
C4025	42974161	C,FILM 100V 0.033UF 5%	1
C4013	430A8109	C,ELEC 16V 10UF	1
C4011 C4022	430A8110	C,ELEC 16V 22UF	2
C4007 C4010 C4012	430A8112	C,ELEC 16V 47UF	6
C4019 C4020 C4021			
C4018	439A1583	C,ELEC 10UF 16V	1
C4004	439A1602	C,ELEC 1UF 50V	1

MODEL : TIMER/FUNCTION PWE A

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ICS ***			
IC2003	37101286	IC M5278L56	1
IC2001	37151363	MOS UPD75216ACW-021 M9055	1
*** TRANSISTORS ***			
TR2011	35501931	TR 2SC2785(E,F,H,J)AT	1
TR2002 TR2003	35502716	TR BA1F4M	2
TR2001	355K2120	DIGITAL TRANSISTOR	1
*** DIODES ***			
D2001 D2002 D2003	360KA025	DIODE 1SS133	19
D2004 D2005 D2006			
D2007 D2008 D2009			
D2010 D2011 D2012			
D2013 D2014 D2015			
D2016 D2017 D2022			
D2031			
D2047	36001025	DIODE 1SS133	1
D20C01	36003112	DIODE RD9-1EB-3	1
LD2C03	36904263	LED RED SLR-34VC3	1
*** VARIABLE RESISTORS ***			
X2001	39080023	4.19MHZ RESONATOR	1
*** RELAYS & SWITCHES ***			
SW2001 SW2004 SW2006	65330052	TACT SWITCH	18
SW2007 SW2008 SW2009			
SW2010 SW2012 SW2014			
SW2016 SW2017 SW2018			
SW2020 SW2021 SW2022			
SW2026 SW2027 SW2037			
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***			
X2002	64004151	X'TAL 32.768KHZ	1
FD2001	67930062	FIP9TM7 (VPS)	1
*** APPEARANCE PARTS ***			
	16444833	LED HOLDER	1
	16445962	HCLDER	1

MODEL : TIMER/FUNCTION PWB A

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** RESISTORS ***			
R2037 R2038 R2039	401KE657	R CARBON 22CH 5X 1/6W	7
R2040 R2041 R2042			
R2043			
R2026	401KE661	R CARBON 330H 5X 1/6W	1
R2001	401KE665	R CARBON 470H 5X 1/6W	1
R2013	401KE673	R CARBON 1.0K 5X 1/6W	1
R2006	401KE685	R CARBON 3.3K 5X 1/6W	1
R2004 R2009 R2010	401KE697	R CARBON 10K 5X 1/6W	8
R2011 R2012 R2027			
R2029 R2045			
R2005	401KE717	R CARBON 68K 5X 1/6W	1
R2008 R2014 R2028	401KE721	R CARBON 100K 5X 1/6W	5
R2030 R2034			
R2024 R2033	401KE729	R CARBON 220K 5X 1/6W	2
R2002	401KE733	R CARBON 330K 5X 1/6W	1
R2003	401KE741	R CARBON 680K 5X 1/6W	1
R2049	40105649	R CARBON 100H 5X 1/6W	1
*** CAPACITORS ***			
C2011	421C8C49	C CERAMIC 50V 1000PF	1
C2007 C2008 C2009	421C8237	C CERAMIC 50V 100PF	11
C2010 C2016 C2024			
C2025 C2026 C2027			
C2028 C2029			
C2003 C2023	421C8862	C CERAMIC 25V 0.01UF	2
C2006 C2015 C2022	421C8863	C CERAMIC 25V 0.022UF	3
C2012 C2013	423A2C37	C CERAMIC 50V 47PF	2
C2001 C2005 C2014	430A8109	C ELEC 16V 10UF	3
C2002	430A8124	C ELEC 50V 0.1UF	1
C2004	430A8351	C ELEC 50V 3.3UF	1
C2021	430A8352	C ELEC 50V 4.7UF	1

MODEL : SUB FUNCTION PWB ASS

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** DIODES ***			
D2030 D2033 D2034	360KA009	DIODE 1S2473 AT26	5
D2043 D2045 LD2001	36904262	LED GRN SLR-34MC3	1
*** VARIABLE RESISTORS ***			
VR2001	41504183	SLIDE VR 500KB (20MM)	1
VR2002	41504184	SLIDE VR 2KB (20MM)	1
VR2003	41951154	R,VARIABLE 100K,B	1
*** RELAYS & SWITCHES ***			
SW2038 SW2041	65180052	SLIDE SW 1-1-2	2
SW2040	65180060	SW,SLIDE	1
SW2011 SW2013 SW2019	65330052	TACT SWITCH	5
SW2023 SW2037			
*** APPEARANCE PARTS ***			
	16445651	LED HOLDER	1
*** RESISTORS ***			
R2036	409HB661	R,CARBON 33CH 5% 1/4W	1
*** CAPACITORS ***			
C2020	43920001	C,ELEC DOUBLE LAYER	1

MODEL : TUNER/IF PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** CRT & TUNER ***			
	34393021	U/V TUNER(CATV)	1
*** ICS ***			
IC31C4	37101127	IC UPC-393C	1
IC3001	37101240	IC LA7530	1
IC3103	37101284	IC LA7210	1
IC31C2	37151324	MOS M58655P (EAROM)	1
IC31C1	37903162	IC LA7910 (X0260C)	1
*** TRANSISTORS ***			
TR3108	35004113	TR,2SA916 M	1
TR3104	35055312	TR 2SC2001 L	1
TR3105	35058012	TR 2SC2352 L	1
TR3C03 TR3102 TR3107	35501931	TR 2SC2785(E,F,H,J)AT	3
TR3001 TR3002 TR3101	355K1131	TR,2SA1175 (E,F,H,J)	4
TR31C3			
TR3C04	35940502	TR,2SC1730 L	1
*** DIODES ***			
D31C1 D3102 D31C3	360KA025	DIODE,1SS133	6
D31C4 D3105 D31C6	36003049	ZENER DIODE UPC-574J	1
2D31C1			
*** VARIABLE RESISTORS ***			
X31C1	39080012	CERAMIC RESO. CSB500E5	1
VR3101	41951148	R,VARIABLE 10K,B	1
*** COILS & FILTERS ***			
L30C3	610G2765	COIL FILTER	1
L3004	610G2773	COIL FILTER	1
L3005	61011531	SAW COIL 1R8	1
L3002	61011535	SAW COIL 2R7	1
FL3C02	611C7034	CERAMIC DISCRIMINATER	1
FL3C03	611K5012	SIF FILTER 5.5MHZ	1
FL3C04	61137037	CERAMIC TRAP TP55.5MW	1
FL3C01	61138023	VIF SAWF SAF38.9M2R722	1
T3001 T3002	61815155	V.IFT (9.5TURN)	2

MODEL : TUNER/IF PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***			
	70780009	CABLE,CONNECTOR (110MM)	1
*** APPEARANCE PARTS ***			
	16582402	TUNER SHIELD CASE	1
*** RESISTORS ***			
R3037	401KE625	R,CARBON 10H 5X 1/6W	1
R3035	401KE641	R,CARBON 47H 5X 1/6W	1
R3025	401KE645	R,CARBON 68H 5X 1/6W	1
R3036	401KE649	R,CARBON 100H 5X 1/6W	1
R3023	401KE653	R,CARBON 150H 5X 1/6W	1
R3032	401KE657	R,CARBON 220H 5X 1/6W	1
R3003	401KE659	R,CARBON 270H 5X 1/6W	1
R3009 R3011 R3145	401KE661	R,CARBON 330H 5X 1/6W	3
R3024	401KE663	R,CARBON 390H 5X 1/6W	1
R3004 R3020	401KE665	R,CARBON 470H 5X 1/6W	2
R3018 R3038	401KE669	R,CARBON 680H 5X 1/6W	2
R3007 R3015 R3017	401KE673	R,CARBON 1.0K 5X 1/6W	7
R3019 R3127 R3128			
R3143			
R3142	401KE675	R,CARBON 1.2K 5X 1/6W	1
R3010 R3034 R3102	401KE681	R,CARBON 2.2K 5X 1/6W	7
R3103 R3120 R3121			
R3122			
R3110	401KE685	R,CARBON 3.3K 5X 1/6W	1
R3134	401KE687	R,CARBON 3.9K 5X 1/6W	1
R3002 R3012 R3022	401KE689	R,CARBON 4.7K 5X 1/6W	5
R3125 R3126			
R3005	401KE691	R,CARBON 5.6K 5X 1/6W	1
R3021	401KE693	R,CARBON 6.8K 5X 1/6W	1
R3111 R3112	401KE697	R,CARBON 10K 5X 1/6W	2
R3033	401KE699	R,CARBON 12K 5X 1/6W	1
R3141	401KE701	R,CARBON 15K 5X 1/6W	1
R3114 R3115 R3116	401KE703	R,CARBON 18K 5X 1/6W	4
R3146			
R3113 R3135 R3136	401KE705	R,CARBON 22K 5X 1/6W	3
R3008	401KE707	R,CARBON 27K 5X 1/6W	1
R3013 R3108 R3109	401KE713	R,CARBON 47K 5X 1/6W	6
R3149 R3150 R3153			
R3147	401KE717	R,CARBON 68K 5X 1/6W	1
R3006 R3014 R3105	401KE721	R,CARBON 100K 5X 1/6W	3
R3107 R3123 R3124	401KE729	R,CARBON 220K 5X 1/6W	3

MODEL : TUNER/IF PWB ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
R3144	401KE733	R,CARBON 330K 5X 1/6W	1
R3104 R3106	401KE737	R,CARBON 470K 5X 1/6W	2
R3119	401KE741	R,CARBON 680K 5X 1/6W	1
R3118	401KE745	R,CARBON 1.0M 5X 1/6W	1
R3133	40809989	R,FUSE 2.2H 5X 1/4W	1
R3152	409HB641	R,CARBON 47H 5X 1/4W	1
R3137 R3138	409HB721	R,CARBON 100K 5X 1/4W	2
R3027 R3031 R3148	40913109	R,CARBON 2.2H 5X 1/4W	3
R3151	40913125	R,CARBON 10H 5X 1/4W	1
*** CAPACITORS ***			
C3110	421CB043	C,CERAMIC 50V 330PF	1
C3109 C3113 C3118	421CB049	C,CERAMIC 50V 1000PF	3
C3007 C3009 C3010	421CB461	C,CERAMIC 16V 0.01UF	12
C3014 C3015 C3020			
C3031 C3032 C3033			
C3034 C3101 C3116			
C3001 C3002	4210B133	C,CERAMIC 25V 0.01UF	2
C3120	42110425	C,CERAMIC 50V 0.01UF	1
C3004	423A2015	C,CERAMIC 50V 10PF	1
C3018	423A2025	C,CERAMIC 50V 15PF	1
C3025	423A6C03	C,CERAMIC 50V 3PF	1
C3011 C3012	423A6040	C,CERAMIC 50V 62PF	2
C3005	429G8267	C,METAL FILM 50V 0.022UF	1
C3008	430A8109	C,ELEC 16V 10UF	1
C3019	430A8110	C,ELEC 16V 22UF	1
C3016 C3021 C3102	430A8112	C,ELEC 16V 47UF	4
C3115			
C3111 C3114	430A8127	C,ELEC 50V 0.47UF	2
C3003 C3108 C3112	430A8128	C,ELEC 50V 1UF	3
C3006	430A8130	C,ELEC 50V 3.3UF	1
C3106	430B6C68	C,ELEC 50V 47UF	1
C3117	43018103	C,ELEC 6.3V 47UF	1
C3103 C3104 C3105	439H0049	C,ELEC 50V 0.22UF	3

MODEL : POWER/REGULATOR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** IC ***			
IC001	79VA0003	IC M5237L UCZ0097ZZ	1
IC002	79VA0004	IC PQ12R02 UCB0028AZ	1
*** TRANSISTORS ***			
TR001	35520817	TR, 2S8949 Q	1
TR002	35003516	TR, 2SA733/733A P	1
TR003	35543519	TR, 2SC2390	1
TR005	79VA0005	2SD1266 UAD0090CZ	1
TR006	35170501	TR, AA1A4M	1
TR007	79VA0006	2SD1286 UAD0089AZ	1
TR008	35541931	TR, 2SC2785 (E, F, H, J)	1
TR009	35170505	TR, AA1A4M	1
*** DIODES ***			
D002	36107522	RECTIFIER, SI ERA15-02	1
D003	36107522	RECTIFIER, SI ERA15-02	1
D004	79VA0007	DIODE, ERA15-01 UBC0125*Z	1
D005	79VA0007	DIODE, ERA15-01 UBC0125*Z	1
D006	79VA0007	DIODE, ERA15-01 UBC0125*Z	1
D007	79VA0007	DIODE, ERA15-01 UBC0125*Z	1
D008	79VA0007	DIODE, ERA15-01 UBC0125*Z	1
D009	36003954	DIODE 1S2076A	1
ZD002	36905204	ZENER DIODE, RD20EB	1
ZD003	36905220	ZENER DIODE, RD30EB	1
*** TRANSFORMER ***			
PT001	79VA0077	TRANSFORMER, NH1310	1
*** SWITCH ***			
SW001	79VA0071	SF-W101W-01BB, PJC0136ZZ	1
*** FUSES ***			
F001	66671005	FUSE SET 2A 250V	1
F091	66671005	FUSE SET 2A 250V	1
*** RESISTORS ***			
R003	79VA0008	1/4W2.2KJ8(7.5) UEEB222BA	1
R004	79VA0009	RS1PC510HJ.S UEFD511BF	1
R006	79VA0010	1/4W33KGB(7.5)	1
R007	79VA0011	1/4W33KJ.B(7.5)	1
R008	79VA0012	1/4W0.22HK, S	1
R009	79VA0013	1W0.47HK, S	1
R010	79VA0014	1/4W2.7KJ, B(7.5)	1
R012	79VA0015	1/4W15KJ.B(7.5) UEEB153BA	1

SMODEL : POWER/REGULATOR ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
R013	79VA0016	1/4W220BJ, B(7.5)	1
R014	79VA0017	1/4W1.2KJ, B(7.5)	1
R015	79VA0018	1/4W10KJ, B(7.5)	1
R017	79VA0011	1/4W4.3KG, B(7.5)	1
R018	79VA0019	1/4W680HJ, B(7.5)	1
R020	79VA0020	1/4W22KJ, B(7.5)	1
R021	79VA0015	1/4W15KJ, B(7.5) UEEB153BA	1
L091	79VA0076	CHOKE COIL FK08160MH15	1
*** CAPACITORS ***			
C002	43026058	C, ELEC 35V 1000UF	1
C003	79VA0021	CE04W1J101MA UGAG104BU	1
C004	43026041	CE04W1E470MA	1
C005	43026034	CE04W1C222MA	1
C006	42976509	CQ92V1H472J, A	1
C007	43026048	CE04W1E332MA	1
C008	43026028	CE04JC470MA	1
C009	43026045	CE04W1E471MA	1
C010	79VA0022	CE04W2A010MA UGAJ1ROBU	1
C011	42311045	CC45SL1H101J, B	1
C012	79VA0023	CE04W2A101MA UGAJ101BU	1
C013	79VA0063	CE04W1H010MA UGAF1ROBU	1
C015	42976525	CQ92V1H104J, A	1
C016	79VA0022	CE04W2A010MA UGAJ1ROBU	1
C017	43026054	CE04W1V101MA	1
C021	79VA0022	CE04W2A010MA UGAJ1ROBU	1
C022	79VA0069	CE04W2A470MA UGAJ470BU	1
C023	79VA0022	CE04W2A010MA UGAJ1ROBU	1
C091	79VA0074	0.1UF UGZ0326ZZ	1
PC001	79VA0075	POWER SUPPLY CORD IEC EHS0291ZZ	1
	18292501	WIRE CLAMPER #2104	1

MODEL : PACKING ASSY

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***			
K007	79559054	IEC RF CABLE (1.2M)	1
	79799460	REMOCON UNIT RB-55P	1
*** APPEARANCE PARTS ***			
K011	16830121	PACKAGE	1
K011	16831761	SHEET	1
K009	16832952	CUSHION(FRONT)	1
K010	16832961	CUSHION(REAR)	1
K012	16833411	CARTON BOX N9055G	1
*** PRINTED & PACKING MATERIALS ***			
K003	78817C41	INSTRUCTION BOOK N9055G	1

MODEL : MECHANICAL PARTS

SYMBOL	PARTS NO	DESCRIPTION	QTY
*** PWB ASSYS ***			
B088	82423AH1	ROTARY DRUM SASSY (PAL2H)	1
*** MECHANICAL PARTS ***			
B003	16177871	S. SOFT BRAKE ARM ASSY	1
B004	16177882	TU. SOFT BRAKE ARM ASSY	1
B005	16177922	LOADING UP ASSY	1
B006	16177932	LOADING LOW ASSY	1
B007	16178003	C. BRAKE ASSY	1
B010	16178062	S. REEL DISK ASSY	1
B012	16178301	EARTH PLATE S.A.	1
B015	16178392	MODE GEAR ASSY	1
B009	16179853	REEL DISK ASSY (2)	1
B071	16180503	IMPEDANCE ROLLER ASSY	1
B011	16180801	R. IDLER ASSY	1
B001	16183542	TENSION ARM ASSY(M2)	1
B002	16183551	TENSION BAND ASSY(M2)	1
B013	16183561	BRAKE ARM(R) ASSY(M2)	1
B014	16183571	BRAKE ARM (L) ASSY(M2)	1
B091	16183581	CONNECTED ARM ASSY	1
B092	16183591	LGCK LEVER ASSY	1
B094	16183611	S LINK ARM ASSY	1
B095	16183632	S LINK ASSY	1
B016	16183642	REVERSE ARM ASSY	1
B066	16183653	PINCH ROLLER ARM ASSY(M2)	1
B069	16183671	MODE CAM ASSY(M2)	1
B073	16183981	LED HOLDER ASSY (M2)	1
B093	16184071	BRAKE LINK ARM ASSY (DC)	1
B084	16184371	R. DRIVE ASSY (M2)	1
B067	16184381	PINCH LINK ASSY	1
B018	16287641	NUT	4
B019	16288001	POLY SLIDER	2
B020	16288381	CLAMPER	1
B021	16442101	GUIDE ROLLER	6
B022	16442111	GUIDE ROLLER HOLDER	3
B023	16442121	GEAR (1)	1
B024	16442131	GEAR (2)	1
B027	16442161	DRIVE BELT	1
B028	16443362	GEAR	1
B098	16444374	G.P CAP	1
B098	16448341	ACE CODE CRAMPER	1